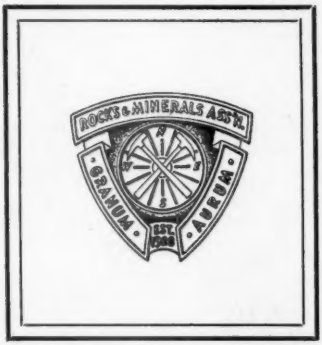
Rocks and Minerals

Official Journal of the Rocks and Minerals Association



A Magazine for Mineralogists, Geologists and Collectors

42

October, 1947

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Vol. 22, No. 10 *Whole No. 195*

16th LIST OF FINE MINERALS

AXINITE, Franklin, N. J. Fine yellow xld. & xlline. mass. 4 x 2¼ x 1½ $ 5.00
PYROMORPHITE, Phoenixville, Pa. Xld. crust on Quartz xls. 4 x 3 x 2 .. 2.00
WILLEMITE, Franklin, N. J. Small reddish-green **xls.** on ore.
2½ x 2. Good 5.00
FRIEDELITE do. W. Calcite & Franklinite, polished one side. 3½ x 2¼ .. 4.00
RHODONITE v. FOWLERITE, Franklin. Group of good pink xls. 3 x 3 .. 3.00
FRANKLINITE, Franklin. Large 2" xl., good but not perfect. 3 x 2¼ x 2 2.50
SMITHSONITE, Tseumeb. Xld. mass, yellowish-green. 3 x 3½ x 1½ ... 3.50
ALLOPHANE, Huelva, Spain. Light blue mass w. some matrix. 1½ x 1 .. 1.00
FLUORITE, Alston, Cumberland. Twin group, lilac, 1½" $1.50; another
2", $2.00; another light-green and lilac, 1¾", $1.50; another yellow 1.00
MALACHITE, Teruel, Spain. Distinct acicular xls. on rock. 3 x 2 ..... 3.00
STIBNITE, Felsobanya. Group of bright terminated xls. 2½ x ¾ 2.50
BOULANGERITE, Pribram. Xlline. w. some Galena. 3 x 2½ 2.00
CALCITE, Joplin. Fine deep yellow twin xl. 7 x 4½ x 3. An "old timer" 7.50
AURICHALCITE, Bisbee. Xld. in rock. 3 x 3 ..... 3.00
DANBURITE, Japan. Slender 1" term. xl. $10.00; another ½" 2.50
EPIDOTE, Alaska. 1½" twin xl. in group w. green Quartz. 3 x 2 ..... 5.00
ZIRCON, Brazil. Small **green** xls. in matrix. Very unusual. 2½ x 1¾ .. 7.50
RUTILE, Brazil. Group of xls. in matrix, reticulated. 1¼ x 1¼ 2.50
HEMATITE, Brazil. Xl. with mirror-bright faces. 2½ x 1¾ x ½ 2.50
PHARMACOLITE, Germany. Tufts w. Erythrite on rock. 2½ x 2 ..... 1.50
TITANITE (SPHENE), Switzerland. 1¼" opaque yellow xl. in Schist 2 x 2 3.00
HEMIMORPHITE, Wanlockhead. Small botryoidal pale blue in rock.
2½ x 2½ 2.00
OLIVENITE, Cornwall. Compact mass ("Wood Copper"). 3 x 1½ 3.00
PSITTACINITE, Nageib, S. W. Africa. On Quartz. 3 x 1½ x 1¾ 3.00
BERYL, Brazil. Pale pink xld. mass, showing many faces. 2¾ x 1¼ ... 5.00
WULFENITE, Red Cloud Mine. Fine brilliant orange-red xl. 1" 2.00
WOLFRAMITE, Arizona. In Quartz, polished slab. 3 x 2 ..... 2.00
TETRAHEDRITE, Bingham. Mass of brilliant xls. w. some Pyrite. 3 x 2 .. 3.00
HORNBLENDE, Bohemia. Good xls. up to ½" in rock. 3 x 3 x 2 .... 2.00
AXINITE, Nevada. Crude xls. in xlline. mass, clove brown. 3 x 2 ..... 2.00
POLYHALITE, New Mexico. Pink xlline. mass. 3 x 2 ..... 1.25
PROUSTITE, Chile. Pure xlline. mass w. small but good xls. 1½". 2 oz. 10.00
CORUNDUM, N. Carolina. Dark blue xlline. mass. 4 x 1½ 2.00
EPIDOTE, Untersulzbachthal. Very fine translucent xl. 2 x 7/16" 5.00
MAGNETITE, French Creek, Pa. Xld. on mass. 4 x 2½ x 1½ 2.50
SPINEL, Amity, N. Y. Good 1¼" loose xl. 1.50
GROSSULARITE, Mexico. **Large** 1½" white opaque xl., dull faces 2.00
TITANITE, Eganville. 2½" opaque brown xl., good faces. 2.50
APATITE, Ontario. Black terminated xl. (unusual color). 2 x 1 ..... 2.00
MANGANITE, Michigan. Fine xlline. mass w. some xls. 4 x 3 x 2 ..... 3.00
ORTHOCLASE, Cornwall. 2¾" twin xl. partly altered to Kaolin 1.25
SAMARSKITE, N. Carolina. Pure xlline. mass. 3½ x 2½. 16 oz. 3.00
EUXENITE, Madagascar. Fine sharp xl. altered on surface. 1½ x 1½ .. 3.50
TOURMALINE. A number of fine loose xls. from Brazil, Ural Mts., Elba,
San Diego Co., California, Madagascar, etc. Write for list.
WITHERITE, Alston, Cumberland. Fine compound xl. 1½ x 1½ 2.50
HYALITE, Spruce Pine, N. C. Brilliant blue incrustation on rock. 5 x 2 .. 4.00
SCHEELITE, Mexico. Very good orange-yellow xl. 1½" 3.00
ANALCITE, Paterson. Fine glassy xls. on rock. 4 x 3 ..... 3.50

HUGH A. FORD

OFFICE AND SHOWROOM: 110 WALL STREET NEW YORK 5, N. Y.

Telephone: BOwling Green 9-7191

No lists furnished, but enquiries for specific minerals welcomed.

ROCKS and MINERALS
PUBLISHED MONTHLY

Edited and Published by
PETER ZODAC

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Contents for October, 1947

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The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

MINERAL DEALERS ORGANIZING

BY EDW. LANG

Today, all over America, mineral societies are springing up like toadstools along lovers lane after April showers.

These societies gained considerable stability through sectional "Federation". It is rumored now, that in order to achieve complete solidarity, these sectional federations will amalgamate into one "National Federation of Mineral Societies".

Beyond a doubt, should this proposed amalgamation eventuate, it will be the means of propelling the good ship "Rockhoun' " along at a still greater speed than has heretofore been attained. Undoubtedly, this will heap upon the dealers the added burden of supplying the demand of thousands more new "Rockhoun's".

In order for the dealers to successfully cope with this situation, it is necessary for them to organize, and as an organization to hold their own conventions and exhibitions, to meet the public strictly on their own instead of exhibiting co-jointly with the mineral clubs and societies as has been the custom in the past. The phenomenal growth of these mineral societies has prodded the dealers into organizing at last. They realize the time is late, but they are ready and willing to take up the challenge, eager to carry their burden, and so are forming an organization at the present time under the title of National Mineral, Gem and Lapidary Dealers Association.

The association will hold semi-annual exhibitions in localities easy of access for their clientele and, to be able to stimulate greater public interest in the art of lapidary. The association will proceed under competent management familiar with all phases of this particular endeavor necessary to bring these semi-annual exhibitions to a final successful conclusion.

Dealers will be provided with adequate space and tables upon which to display their merchandise. Licensed dealers only are eligible for membership. Plans are to hold the first semi-annual exhibition in the near future.

For full information address correspondence to:

National Mineral, Gem and Lapidary Dealers Association
Edw. Lang, General Manager
P.O. Box 1195,
Santa Monica, California.

Editor's Note: In last month's issue of *Rocks and Minerals,* p. 802, there appeared a notice relative to a group of dealers organizing under the name of "National Equipment and Dealers Mineral Institute", with Col. Fain White King, of Cairo, Ill., as temporary President. Like the invention of the wireless and other things, there were two groups of dealers working for the same purpose without the knowledge of the other—these two groups are now consolidated as the "National Mineral, Gem and Lapidary Dealers Association."

Geology Expedition in East

Collections of representatives ores, physical geology specimens, and certain types of rocks are being made in several eastern states by a geological expedition conducted by Dr. Sharat K. Roy, chief curator of geology at Chicago Natural History Museum, and Harry E. Changnon, assistant curator. A Special effort will be made by the Eastern States Geological Expedition to obtain specimens of ores with characteristic features from which the mode of origin of the ores may be interpreted. Many of these specimens will be used in the economic geology hall, where exhibits are now being installed; others will be added to the geology study collections. Much of the time will be spent in the Adirondack region and its mines, (in northern New York) an excellent area in which to obtain certain types of ores as well as physical geology specimens that display effects of the forces involved in mountain building and rock metamorphism.

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OCTOBER 1947

FUMAROLE BUTTE, UTAH

BY RONALD L. IVES

ABSTRACT

New field data concerning Fumarole Butte, Utah, an extinct Pleistocene volcano in the Sevier Desert, first described by G. K. Gilbert in 1890, are here presented, and the very minor modifications of Gilbert's original conclusions necessitated by these new findings are outlined.

INTRODUCTION

Throughout much of the area between the Colorado Rockies and the California Sierras, very slightly eroded scattered extinct volcanoes give ample evidence of relatively recent eruptions. At the northern part of the area, the Columbia River and Idaho lava beds indicate that major fractions of states were drowned beneath recurrent floods of lava only yesterday, geologically speaking.

Southward, into Utah, Nevada, Arizona, New Mexico, southeastern California and Sonora, the volcanic activity was less extensive, and perhaps not as violent, but is amply evidenced by lava flows, slightly dissected cones, and hot springs.

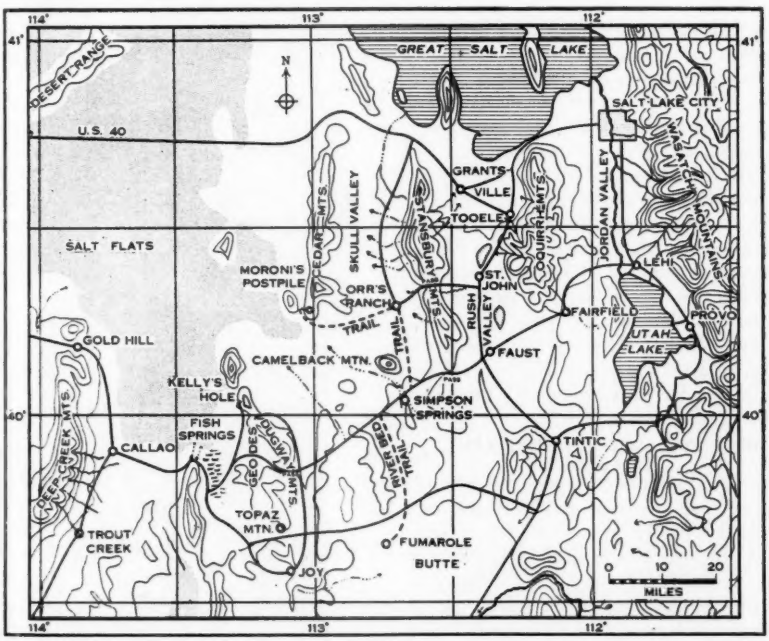


Fig. 1 Outline map of part of the Utah Desert area, showing the location of Fumarole Butte, other geologic features, and principal access routes. Lowest contour is 5,000 feet; contour interval is about 1,000 feet. Make local inquiry before using roads shown on this map.

Of the numerous cones and flows in the Utah Desert, one of the most interesting, and least visited, is Fumarole Butte, first reported in 1890 by G. K. Gilbert; for here, although the cone is partly eroded away, fumes still issue from cracks and fissures in the lava, and adjacent hot springs indicate plainly that the volcanic fires are not dead.

Fumarole Butte is located at the north end of the Sevier Desert, in Juab County, Utah (lat. 39°44' N.; long. 112°45' W.; alt. 4600' MSL.) at the south end of the ancient channel which joins the Sevier Lake basin with the depression now containing Great Salt Lake. General location of Fumarole Butte is shown in Fig. 1. A fairly detailed map of the vicinity is contained in Gilbert's report (1). This has been checked in the field and found thoroughly reliable.

The area can be reached in an ordinary passenger vehicle by only one route at the time of this writing. From Salt Lake City, the route goes through Provo to Eureka (near Tintic, Fig. 1), then south to the intersection of the Callao—Nephi road, then west approximately 30 miles to the River Bed trail. This is very plainly identified by a Grazing Service sign and well. The trail to Fumarole Butte goes south from the west end of the dam at this location, and from here the butte can be quite plainly seen, as in Fig. 2. Make local inquiry before using this road, and keep in mind that the nearest telephone is at Eureka, about 45 miles from the lava fields. There are (spring 1946) a few dud bombs still in the area. These should be left strictly alone; *not* taken home as souvenirs.

GEOLOGIC AND PHYSIOGRAPHIC ENVIRONMENT

Fumarole Butte rises from the gently sloping clay plain of the northern part of the Sevier Desert, which is here composed of evenly-stratified lake bottom clays and silts, dipping toward the center of the basin (Sevier Lake) at an average gradient of about 1/500. Surrounding mountains are largely early Paleozoic quartzites and limestones, with numerous porphyry intrusions (early Ter-

Fig. 2 Fumarole Butte as seen from near the junction of the River Bed Trail and the Callao Road. Trail in left foreground goes directly to Fumarole Butte Hot Springs, and thence, deviously, to Delta, Utah. Note indistinct Provo shoreline on the face of the butte.

1 Gilbert, G. K. *Lake Bonneville*, U. S. Geol. Survey Mon. 1, 1890, p 182, Pl. XXXI.

tiary) and scattered basalt dikes, flows and sills (Pliocene and Pleistocene). A few infaulted wedges of sandstone, of possible Pennsylvanian or Permian age (dating not conclusive) are found to the north, on the west side of the Gilbert River Bed.

Directly beneath the lava, as indicated by exposures in several of the washes cutting into the edges of the lava field, is a coarse-grained conglomerate, composed of angular chunks of quartzite, identical with that in the surrounding mountains; rounded pieces of limestone; and a red matrix, composed largely of silica, and having well-developed mud cracks in some places. Age and origin of this conglomerate are not clearly shown by field evidence, other than that it is definitely post-Paleozoic (contains metamorphosed Paleozoic rocks) and pre-volcanic (lava fills surface irregularities), nor is it certain that all conglomerate exposures represent the same formation. In some locations, the conglomerate resembles the volcanic conglomerate of the White Rocks Pass area(between Orr's Ranch and Moroni's Postpile, Fig. 1), while in others it more nearly resembles the basal conglomerates so common in ordinary sediments, and lacks any field indication of volcanic origin.

Immediately surrounding the base of the lava, in many locations, is a bank of loess, about 1000 feet wide and 30 feet high at the inner border; beyond which is a shallow, salt-caked depression, which seasonally fills with water. This is believed due to wind action, the general structure being in close accord with aerodynamic theory.

GENERAL DESCRIPTION

The exposed portions of the Fumarole Butte lava beds are very roughly circular in shape, with a diameter of approximately eight miles, and an average height of 350 feet. There is one large higher place at the northeast side (Fig. 3) and a small tower, probably a miniature equivalent of the "spine" of Mt. Pelee, in the center. Diameter of the actual base of the former cone is somewhat greater than that now exposed, as indicated by reconstruction of the cone, and in part confirmed by logs

Fig. 3 Fumarole Butte as seen from the air. Black areas are the lava fields. Small tower in the center is the core of the former volcano; hill at left is a remnant of the ancient cone. White area in foreground is a playa, or ephemeral lake (very shallow). Mountains on horizon art a part of the Wasatch Range.

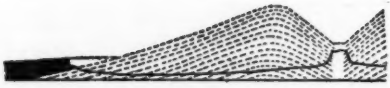


Fig. 4 Gilbert's reconstruction of the former extent of the cone at Fumarole Butte.

of wells drilled in adjacent areas. General appearance of the lava fields is shown in Fig. 3; Gilbert's reconstruction of the former cone in Fig. 4. Note concordance of photograph and sketch.

Predominant lava at Fumarole Butte is a fine-grained basalt, having, in places, a glassy structure. Partings indicate that outflow was sporadic, and that there were many outflows. This is not necessarily an indication that the cone was long in forming, as has been demonstrated by the historically rapid growth of Paracutin.. Several small areas of breccia are present, and may represent ancient subsidiary vents.

Reconstruction of the former extent of the cone suggests that its volume exceeded 30 cubic miles, making due allowance for a central crater, and that at least half of this, or 15 cubic miles, has been removed by erosion.

Gilbert suggests that the upper part of the cone (now eroded away) was composed largely of cinders, which may account for the widespread distribution of pumice in some of the earlier lake beds in the region.

The edges of the cone are fretted by a number of deeply-incised channels, the bottoms of which are filled with lake clays. Close to the Provo shoreline level, the courses of these channels were formerly dammed by clay banks (ancient lake bars), which have been cut through, but not removed, by subsequent erosion. (Fig. 5).

Around the entire periphery of the lava, including the walls of the larger channels, wave erosion during the high water stages of the later Pleistocene has not only cut definite shorelines, like those present elsewhere in this region, but has exaggerated the numerous partings and density differences due to flowage variations, so that the entire face of the butte is stepped, as in Fig. 6. Depth of incision of the steps indicates that the maximum wind force, during the high water stages, was from the NNW quadrant, as is the present dominant wind.

The upper surface of the lava, from which the former cone has been removed by erosion, is substantially level, but by no means smooth. This resembles an erosion surface, such as those in the Columbia River lava beds. Dotting the surface are various fractions of hollow spheres, locally called volcanic bombs, but actually the products of spheroidal weathering. Numerous such "ogives" can be found, in all stages of development, on the surface of the lava.

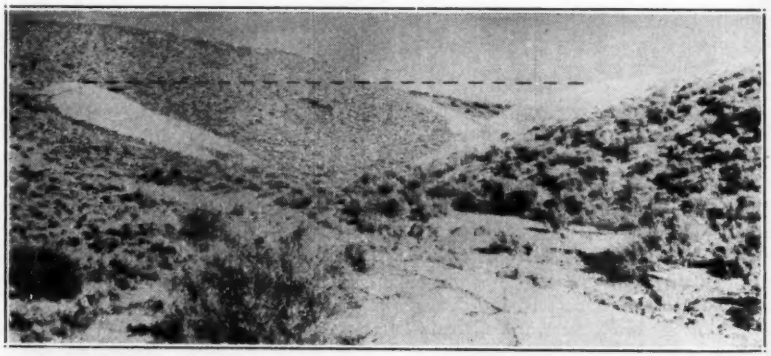


Fig. 5 Remnants of bars across channels in the lava. These are all located close to the former Provo shoreline level, and all have been cut through by subsequent erosion. Two separate bars are present in every channel visited. Dashed line shows former profile.

Distributed more or less at random over the lava, and concentrated near the central tower, are numerous fissures, extending to a considerable depth in the lava. From these issue currents of warm moist air, slightly acidic in odor, and quite nauseating when inhaled for any extended period. Various tests show that the temperature of the fissure air is from 60° to 90° F., and that the relative humidity is as high as 80 percent. At the time these tests were made, the general air temperature was about 40° F. and the relative humidity about 20 percent. Lining some of the fissures (and only some) is a mat of mossy growth, mixed with slime resembling algae, but containing no diatoms (common with algae). Deep within the only fissure found that was large enough to enter (about 1500 feet southwest of the central pillar) temperature was found to be 110° F. and relative humidity very close to 100 percent. Even with a gas mask, it was found impossible to go to the end of this fissure because of acute physical discomfort.

Temperature ranges and general conditions noted about the fissures today (1946) are almost identical with those noted by Gilbert just prior to 1890. From this absence of any substantial change in conditions during more than half a century, it is to be concluded that no sudden change in thermal conditions is to be expected in the near future.

Several smoke pot tests were made in the vicinity of the lava field, and show that air is sucked into minor fissures and partings in numerous locations around the periphery. This would suggest that the outflowing warm air is actually a mixture of "outside" air and vapors from heated materials at some depth.

Rather crude chemical tests show that the major acid present in the fissure vapors is sulphuric. Physiologic effect of the fumes suggests arsine, but the effect is out of all proportion to the amount of arsenic shown by one chemical test. Crusts found in one fissure consisted of a mechanical mixture of kaolin, sulphur, and iron oxide.

FUMAROLE BUTTE HOT SPRINGS

About 1,000 feet away from the edge of the lava, southeast of the center of Fumarole Butte, is an area of about 15 acres in which there are several hundred thermal springs of various temperatures. Scattered among them are small springs of cold water, slightly saltine, but potable. Temperatures of the cold springs are within a few degree of 55 F. at all times. Measured temperatures of the hot springs ranged from 100° to 205° F., and steam rose from many of the vents. General appearance of one of the hot springs at this site is shown in Fig. 7. Gilbert, in 1890, found a temperature range of from 110° to 178° F. As the springs have been tampered with in an unsuccessful search for

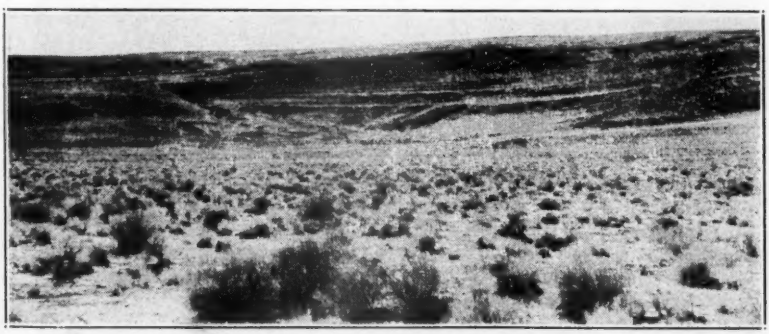


Fig. 6 Stepped outer surface of the lava, caused by wave erosion during later Pleistocene high water stages. Dual deeply-cut level near center of view is the Provo shoreline. Other steps here visible have no exact counterparts elsewhere in the region, and are of local importance only.

Fig. 7 A hot spring in the Fumarole Butte group. These springs con tain iron, small quantities of sulphur, and a faint trace of arsenic.

mercury, and later excavated to disclose small manganese deposits, and as the average temperatures are about the same, despite an extension of the recorded limits, the change in spring temperatures since 1890 is probably more apparent than real.

Most of the hot springs here bubble up through a series of small fissures and pipes in an iron-indurated clay bed. No well-developed "morning glory" springs, like those at Fish Springs, were found here, and general surface appearance of the spring area suggests frequent changes of the outflow points Thermal waters here contain iron, manganese, sulphur, and faint traces of arsenic. Vapors from these springs are nontoxic in concentrations likely to be encountered in the area.

The springs are locally credited with marked therapeutic properties. The waters are slightly cathartic and slightly astringent.

DATING OF VOLCANIC ACTIVITY

Attitude of the lavas at Fumarole Butte indicates that the former cone was constructed subsequent to the most recent major deformation in the area, as the lavas are substantially unfaulted and undistorted. Consideration of the history of deformations in this region indicates that Miocene is the earliest probable dating possible for this structure. This is in part supported by the presence, in adjacent areas, of somewhat similar basalt structures not older than Miocene.

Because the Bonneville shoreline is quite clearly carved on the central tower and the northeast ridge of the ancient cone, it is quite certain that its present shape was reached prior to the Pleistocene high-water period which created Lake Bonneville. The presence of yellow marls in some of the canyons cut into the lava shows plainly that erosion of those canyons occurred some time before the Bonneville high water, as the yellow marls underlie the white marls of Bonneville age, and probably represent one earlier stage, tentatively named the Escalante.

As approximately half of the volume of the ancient cone was removed by erosion prior to the Bonneville Lake stage, and as no change of any consequence has occurred in the structure since that stage, it may be concluded that erosion of the cone required a very much longer period prior to the Bonneville stage than has elapsed since. Even if it is assumed that the removed portion of the cone was composed largely of cinders, it would be difficult to justify a dating more recent than late Pliocene for the completion of the cone. Gilbert, following similar reasoning, reached a similar conclusion.

This would indicate that Fumarole Butte was one of the older of the basaltic eruptions in the area, many of the others being definitely of undeniable Pleistocene age.

ADJACENT VOLCANIC STRUCTURES

Although there are few counties in Utah which do not contain both hot springs and recently-extinct volcanoes, those of major geologic interest, so far as now known, are all in Juab and Millard Counties, and all are contained in the Sevier Lake hydrographic drainage area.

Of these, Fumarole Butte is perhaps the oldest. Of more recent age, as indicated by the latest major activity, are Pavant Butte, southwest of Holden, which erupted under water during the Bonneville lake stage: Tabernacle Crater, which did likewise during the Provo stage: and the Ice Spring Craters, near Fillmore, whose most recent eruption probably occurred midway between the end of the Provo lake stage and the present.

The chronology of the central Utah volcanic region was first worked out by Gilbert between 1872 and 1888. So graphic are the descriptions that all of the major, and most of the minor, features can be found "first try" from Gilbert's reports.

ACKNOWLEDGEMENT

The writer is indebted to Capt. Christopher Grady, A. C. for a photographic flight over the Sevier Desert area, and to Capt. R. A. Walker, CWS, for transportation.

Dugway Proving Ground;
Tooele, Utah.
March 28, 1946.

Fig. 7 A hot spring in the Fumarole Butte group. These springs con tain iron, small quantities of sulphur, and a faint trace of arsenic.

JASPER NEAR MILTON, VERMONT

BY ROBERT REX

There once was a rockhound named
Casper,
Who went to Vermont to hunt jasper.
He filled up his sack,
Till it buckled his back.
Then he sat down and lighted a gasper.
—C. G. Osgood

What is probably one of the best jasper deposits in the east was the objective of the North Country Mineralogical Club's field trip on August 3, 1947. It is easily accessible, located on Eugene Parrot's farm just off U.S. 2. This jasper deposit meets all the requirements for a good mineral location. The minerals are interesting and various, the quarry is accessible by car, an excellent picnic spot is only a hundred feet from the quarry, and the owner is friendly to Rockhounds (Let's not give him cause to change his attitude!).

The jasper is notable for its brilliant color, ranging from maroon to brick-red. Very often a beautiful mottled effect results from the combination of the various colored jaspers and hematite.

The jasper occurs with hematite as veins and lenses in brecciated limestone. The veins range up to a yard in thickness. Hematite is mixed with the cementing agent in the breccia. The best quality limestone is cream and maroon.

MINERALS FOUND

Azurite: One piece of jasper was found that was covered with azurite crystals and crusts of malachite.

Hematite: It varies from cryptocrystalline to specular platy crystals. There is a large quantity of this mineral. A number of crystal clusters found were concave in structure. Some true hematite "roses" might be found by a diligent rockhound.

Jasper: This is the most important mineral found at the quarry. Its technical name is jaspilite. The crystalline structure is slightly more apparent than in most jaspers. This does not affect its cutting qualities. There is so much jasper at this deposit that your only trouble will be deciding which pieces you will take. There is enough jasper to last for many years. Mr. Parrot is selling it at $18.00 a ton (quarry it yourself). Rockhounds should ask for permission to visit the deposit at the farmhouse.

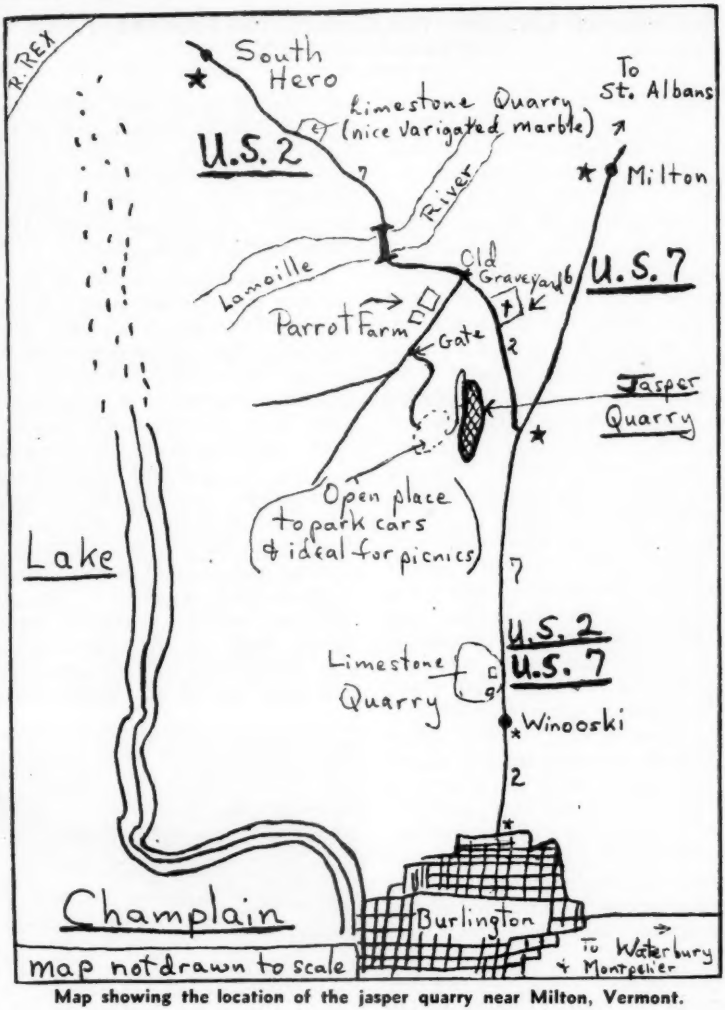
Jasper Quarry near Milton, Vermont. Left to right: Adolf Koerber of Brooklyn, N. Y.; Arthur Sandiford; and William R. Ellsbury. The latter two collectors are the Treasurer and President, respectively, of the North Country Mineralogical Club.

Limonite: This occurs as crusts and stains on the jasper.

Malachite: It is found as crusts and replacing other minerals in jasper. Malachite is more frequently encountered than azurite, but is not common.

Editor's Note: Jaspilite is a term used for jasper when it is made up of bright red bands and associated with black bands of hematite. Milton, a small village in northern Chittenden County of northwestern Vermont, is about 4 miles northeast of the Parrot farm.

Reference—Jaspilite deposit in Vermont, by H. L. Chandler, *Rocks and Minerals*, September 1942, p. 317.



Map showing the location of the jasper quarry near Milton, Vermont.

ALASKAITE AND ALASKITE

Two names which may confuse our readers are alaskaite and alaskite. One is a mineral that was first found in Colorado, the other is a rock named for its occurrence in Alaska.

Alaskaite is a massive light lead-gray lead, silver and copper bismuth sulfide that was discovered by G. A. Koenig, about 1885, in the Alaska gold-silver mine, Poughkeepsie Gulch, Silverton district, San Juan County, Colorado. It was named after the mine.

Alaskite is the name given to a variety of granite composed chiefly of quartz and feldspar. It is common in many parts of Alaska and was named about 1896, by J. E. Spurr, who was examining some gold-quartz deposits in that country.

NOTES OF LASSEN VOLCANIC NATIONAL PARK

BY PAUL E. KILLINGER
Buffalo, N. Y.

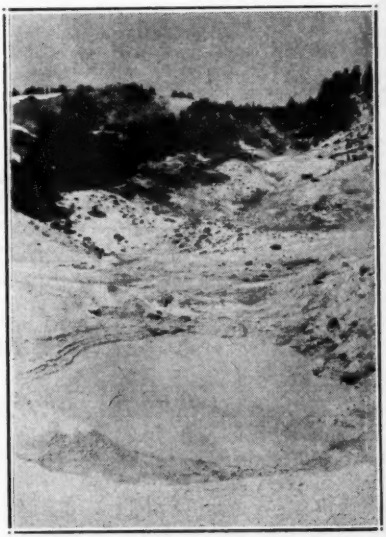
On July 1, 1947, I drove thru the sylvan forests of northern California and into Lassen Volcanic National Park via the Sulphur Works entrance near Mineral. Driving the well engineered highway that leads around the base of Mt. Lassen (10,451') I was attracted by a sign pointing to Bumpas Hell (named after its discoveror), a region of fumaroles, boiling pools and mud volcanoes.

A walk of one mile was soon rewarded by the sight of a rolling depression in the hills, several acres in area, and heavily packed with steaming evidences of volcanic activity. Several people were seen talking to a ranger-naturalist who was about to conduct a tour around this area, and I walked with this group.

As we circled the area many very typical manifestions of volcanic activity were observed. The numerous pools in the area were all kept near the boiling point by the steam and hot gases percolating up thru them. Some pools contained yellow-green precipitates of sulphur and others had surface scums of black iron sulphide (iron pyrites) crystals. Many of the drainage streamlets from the clearer pools were seen to be in the process of depositing stream opal of very poor quality due to the rapidity of depositation. Many of the smaller fumaroles were encrusted with beautiful monoclinic sulphur crystals and in some spots massive sulphur in pieces up to 3 inches in diameter were observed.

As we circled back to our starting point, our party of five walked close to a large steaming pool and suddenly the only woman in the group startled everyone by breaking thru the mud surface and slipping a few feet into a small mud volcanoe or boiling mud pot. This had evidently built up under the surface of the otherwise very solid kaolin clay until only a few inches of clay remained as a "roof" over it. The unfortunate woman was quickly helped to safety and her shoes and stockings removed. But the heat of the liquid mud well above the boiling point of water, had done its work and both her legs were badly burned and blistered. Tannic acid salve was applied by the ranger, and while her husband, lame from a horseback riding accident, hobbled back to get the car, the ranger and I half-carried her back to the road.

After this unusal episode, my day was half over but I decided to try making the summit of Mt. Lassen anyway. After a two hour climb on mediocre trails the summit was reached. The crater, glutted with lava and snow, is completely inactive except for one small area on the north side. There both outer and inner walls are honeycombed with fumaroles. Much sulphur was again noted together with some evidence of arsenic. Plenty of hydrogen sulphide was present in the escaping gases. The famous American mountaineering organization, the Sierra Club, has provided a register near the highest point on the crater rim, and after signing this and enjoying a somewhat hazy view of Mt. Shasta, I started



A boiling pool (in Bumpas Hell) in Lassen Volcanic National Park, Northern California.

down. A few hundred feet below the rim a long snow slope provided means for a quick descent and an unusal thrill in sliding down its steep face.

And so my day at Lassen Volcanic National Park came to an end. The freak accident which I described is indicative of what can happen in a constantly changing area like this. The ranger told me that only yesterday he had crossed the area where this mud volcano was so sorrowfully discovered, and that there was no evidence of its presence at that time.

Lassen Park, including a number of lower peaks as well as the peak for which it is named, and numerous clear, colorful lakes, is a beauty spot seen by few people, yet well worth the attention of more visitors. The whole story of volcanic activity may be easily observed within its boundaries.

GEODES NEAR GREENCASTLE, INDIANA

BY WALTER REEVES

R3, Greencastle, Ind.

About the year 1820, a band of Miami Indians camped on the rocky bluffs overlooking a valley down which a creek of sparkling water flowed in Putnam County, of western Indiana. In the creek were bronze-backed bass and the forest teemd with game.

Gone are the Indians and the bass and all the larger game animals but the creek still flows down the valley although in reduced volume.

Along this little creek in the days of the Indians there were geodes and today the geodes are still there awaiting collectors.

In this part of Indiana the bed rock is Mitchell limestone from 50 to 300 feet in thickness and underlying it is Harrodsburg limestone which contains innumerable geodes. The Harrodsburg limestone extends in a narrow belt from Putnam County southeasterly to the Ohio River but outcrops in only a few places.

At sometime in the dim past a rim about ¼ mile wide had been pushed up across the valley damming the little creek. Its waters have cut through about 10 feet of earth and 50 feet of Mitchell limestone into the Harrodsburg limestone forming a canyon tbout ¼mile long. The Harrodsburg is a soft stone and the freezing and thawing of winter causes it to crumble and it thus loosens many geodes. At the lower end of the canyon there was once a valley about 70 feet deep as shown by wells drilled in it but which is now filled up with broken stone and gravel. This contains numerous geodes.

The geodes range in size from that of a pea up to 18 inches or more in diameter. They contain mostly milky quartz crystals (a few doubly terminated), some clear rock crystals, and occasionally a limonite-stained drusy quartz which at times resembles citrine. Many of the geodes contain calcite crystals up to 4 or 5 inches in diameter. A few small pale brownish dolomite crystals have been found with the milky quartz. Many solid nodules of quartz and calcite are also to be found.

The geodes are found in a limited area 5 miles north of Greencastle, in the central part of Putnam County.

The Mitchell limestone contains many fossils, especially crinoid stems. My son recently found the skeleton of a fish imbedded in a block of the limestone.

You have heard of the man who walked through the forest and saw no firewood. I was showing some lovely snow-white sparkling geodes, I had opened recently, to one of my neighbors. He seemed very surprised and said, "I have hunted there all my life but I never saw anything like that before."

Maybe the Indians didn't see the beauty either that lay at their feet!

CRYSTALLINE QUARTZ OCCURRENCE NEAR BOULDER CITY, MISSOURI

BY T. A. PATTERSON
R.R. 1, Granby, Mo.

In southwestern Missouri there are several streams which drain the western slope of the Ozarks. There are many springs and branches of clear sparkling water tributary to the larger streams.

Earth movements at the time of the Ozark uplift resulted in considerable displacement of rock strata. Along each stream there is a series of hills and bluffs and wherever the rock layers are exposed enough to be observed there is found to be some tilting, the layers dipping under other deposits farther away from the streams.

These watercourses meander through narrow valleys flowing near the base of the bluffs first on one side and then on the other. The series of bluffs appear to lie along great fissures or fault lines which formed the original course of the streams. However the original pattern of the land has been greatly changed by the forces of erosion which wore down the heights and smoothed the surface of the tablelands between the valleys.

The predominant rock formations of the region are limestone and chert with occasional outcrops of sandstone. Because of the resistance to weathering, chert forms most of the boulders and rock fragments which are scattered here and there on the surface of the land. The more level tablelands are covered with soil and gravel,the best soil of upland and valley are used as farmlands while the broken hilly land is covered with a growth of trees, shrubs, and plants.

The vicinity of the crystalline quartz occurrence near Boulder City is a wild and rugged locality on Indian Creek. Several deep ravines cut into the creek valley with high ridges separating the ravines.

Both the ridges and steep sides of the ravines are covered with a dense growth of trees, underbrush, briers, and plants. A few places on the ridges and sides of the ravines are barren of vegeation, the boulders and rock fragments having not weathered enough to form soil.

The quartz occurrence cuts across ravines and ridges and has been traced for a distance of more than two miles. Examination of surface features indicate that great beds of chert were laid down in past ages, the crystalline quartz being deposited in seams and cavities and later on the whole mass was broken up by movements of the earth crust. Later on the heights were worn down and the ravines gouged out by the processes of erosion.

The crystalline quartz occurs as crystals on boulders and slabs of chert which are scattered along the ridges and on the sides of the ravines. The crystals range from drusy coatings to a quarter-inch in size and vary in color from pale yellow to brown—some crystals being clear and almost colorless. Except some of the barren places, the dense growth of vegetation makes it difficult to find the quartz, yet a careful search may be rewarded with some very beautiful specimens.

On the side of one ravine, near the top of the ridge, were some especially beautiful crystals. There, nearly hidden by shrubs and plants, were several crystal-coated chert slabs—one large slab stood out in plain view. It was a most magnificent specimen with its beautiful clear crystals gleaming and scintillating in the reflected light of the Ozark sun.

Boulder City, a hamlet in the southern part of Newton County, is located on Indian Creek, 8 miles south of Granby and 4 miles west of Stella. The crystalline quartz occurrence is across Indian Creek and begins about a mile southeast of the hamlet.

A PUZZLED COLLECTOR

BY ANTHONY THURSTON
Box 104, Swansea, Mass.

In looking over some old copies of *Rocks and Minerals* during the past few weeks while I had been ill, I noticed two things that might be interesting to bring to the attention of our readers.

First, in the June, 1944, issue, there was an article on Carlsbad Caverns, New Mexico, by Sgt. William N. Secrist, and the author mentioned that there were pools of water in the caves as well as stalactites which were still growing. I visited the Caverns in August, 1946, and one of the things which impressed me was the absence of water. Several of the stalactites and stalagmites were damp, but at no place can I remember seeing any pools of water. I did notice, however, that in many places thin lime crusts extended out from formations and walls where they had been deposited by standing water. This often looks deceiving, for in many caves pools are so clear and still that it is hard to believe there is water until you look closely.

Now what I am wondering is why this change since 1944? Is the little remaining moisture drying up, or has the park service drained these areas? Some places looked as if the water had been there only a few days past, yet they were perfectly dry.

A note of interest might be that there were 700 people in the group with which I toured the Caverns. Two other groups, one ahead and one behind, were also in the Caverns at the same time and the huge rooms were not even crowded. This will give some idea of the immensity of Carlsbad. Those who have visited some of the other smaller caves have probably had the experience of being guided through with a group numbering between 5 and 25.

The second point which came to my attention was the great increase in mineral dealers during the past two years, which probably indicates an increase in collectors. Some issues of *Rocks and Minerals*, both pre-war and post-war, had only 10 pages of advertising, but a rise began in the latter part of 1945 which still seems to be continuing. Now for a number of months there have been over 50 pages of advertising. It also seems to me that this is leaning more in the direction of lapidary supplies and cutting material than in the other fields of mineralogy. Is it likely that we are about to experience a "fad", of collecting minerals such as a number of other fads, pastimes or hobbies which have swept over America? Have new dealers been held back by the war? Of course there are many possible ideas to be considered, such as returned service men who for various reasons might have become interested in minerals while in the service, and are now finding this a good hobby. Or perhaps many people who were unable to travel before the war have now taken their first long vacation and have become interested through visiting the national parks. For at parks the guides are capable of answering questions on mineralogy and geology in a clear, untechnical manner—thus arousing interest. These and many other reasons might explain the rising interest in minerals. Perhaps some other collectors have ideas on this. But whatever the reason, whether it be temporary or a lasting growth of interest, lets all of us, especially those new to the field, use our privilege of visiting mines and quarries intelligently so that we will always be permitted to collect there.

COLORADO GEM COMPANY SOLD

Announcement is made in this issue of the sale of the Colorado Gem Company, of Bayfield, Colo., by Frank Morse to Mr. and Mrs. Edison W. Neuenschwander, of Huntington Park, Calif.

Mr. Morse will continue to reside at the Gem Village (Bayfield) to help develop America's only Gem Colony and to collect minerals for a few of his dealer friends.

EARLY MASSACHUSETTS GEOLOGY

BY ANSON G. BETTS
West Cummington, Mass.

The original settlers of New England included many people who had left England, especially, and had been familiar with mines of lead, copper, tin, iron and coal. They prospected the country for commercial ores much more than the local moderns, who know mostly nothing of mines. There are now, however, instead of searchers for paying mines, many collectors of mineral specimens.

Up to 100 years ago, England was rated as the richest mining country of the World, based on their production of lead, copper and tin, which explains why there was more vigorous ore prospecting 200 and 300 years ago.

Massachusetts appointed Professor Edward Hitchcock of Amherst College to make a report on the Geology, Mineralogy, Botany and Zoology of the State, and a copy of his report, which I have, is dated Amherst College, Dec. 1st, 1843. Travelling even through as small a State as Massachusetts, over 100 years ago, was not as easy as today. Professor Hitchcock states in his "Introduction" that the sums paid for making the Survey, preparing the Report, and collecting, labelling, and arranging 1550 specimens of rocks and minerals for the Government, and about 900 specimens for each of three colleges in the State, has been only two Thousand and Thirty Dollars: "It was only by rigid economy, and laborious industry" states Professor Hitchcock.

Here is what Professor Hitchcock had to say about Boston

"Upon the whole there is not a more magnificent prospect in Massachusetts, than from the dome of the State House in Boston; and it will bear a comparison, it is said, with the most celebrated views of a similar kind in Europe. This noble building stands upon Beacon Hill, the highest spot in Boston; and the lantern upon its dome is about 200 feet above the harbor. From this elevation, the whole of Boston, with its wharfs, shipping, and public edifices; all the islands in its harbor; the shores of the harbor lined with villages and cultivated fields; and within a circle of ten miles, not less than twenty villages, containing, with Boston, more than 120,000 inhabitants, are here surveyed at a glance. Almost every dwelling of this numerous population, is, indeed, visible: and it is rare to see in a circle of so small an extent, as many edifices so elegant; and so few that indicate extreme poverty and wretchedness. So richly cultivated is the vicinity of Boston, that it has the appearance of a vast garden. Yet we do not see here the traces of that vandal spirit, which, in so many parts of our land, is making sad havoc with our groves and shade trees; but enough have been spared or planted in this vicinity to give a refreshing and luxuriant aspect to the scenery.

"The political and moral considerations which irrestibly enforce themselves on the mind when contemplating such a scene, cannot fail greatly to increase the pleasure of the observer. What a drawback on that pleasure there must be, when the traveller is compelled to say, as he cannot but say, when gazing on a large proportion of the interesting scenery of the eastern continent

"Art, glory, freedom fails, though Nature still is fair"

On the contrary, how refreshing to the benevolent spirit, as it surveys from the eminence the dwellings of 120,000 human beings, to be assured that there is not a slave among them all; and that could the eye take in every part of the commonwealth, it would read on every doorpost the inscription" all men are born free and equal". . . . Foreign nations may predict that our beautiful republican system will be ephemeral. . . . At any rate it is certain that we now enjoy the blessings of freedom, and the means, widely diffused, of intellectual, moral and religious cultivation. . . . The traveller of

a benevolent heart will rejoice to see, as he wanders over the hills and valleys of our commonwealth, how very few of the community have not all the essential means of human happiness within their "reach".

Professor Hitchcock found "beds of the oxide of manganese" in two places in the town of Plainfield, and also the "siliceous oxide" (or rhodonite). As to the boulder train showing scattered pieces of rhodonite for miles to the Southeast, Professor Hitchcock says he suspects this siliceous oxide found 3 or 4 miles southeast in Cummington" probably came by diluvial action".

At that time of course, Geology had not yet explained the Glacial ice cap and the tremendous effects of glaciation, and diluvial action" was as far as those geologists had been able to go. Here is what Professor Hitchcock thought about that:

"DILUVIUM. Under this term I include that coating of gravel, boulders, sand, and loam, which is spread over almost every part of the surface, and which has been obviously mingled confusedly together by powerful currents of water, subsequent to the deposition of the regular strata. Hence geologists have referred it to the agency of a general deluge: and since it occupies the highest place in the rock series, except alluvial and volcanic rocks, most of them have regarded that deluge as identical with the one described in the Christian Scriptures. But recently some respectable geologists maintain, that existing causes, operating as they do now, might in the course of ages, have produced all the phenomena of the rock formations."

The puzzlement of the geologists over the glacial deposits is quite entertaining in view of what we know now, but the Professor says *in italics*

"all the diluvium, which had been previously accumulated by various agencies, has been modified by a powerful deluge, sweeping from the north and northwest, over every part of the State: not excepting its highest mountains"

Had the professor recognized that the "deluge" was of ice and not of water, he would have been exactly right.

In recent years, where the professor had noted in Plainfield, manganese minerals, including the "siliceous red oxide" or rhodonite, mines of manganese have been opened and many thousand tons of manganese ores shipped away, taken from thick solid veins that were beneath the glacial debris, here 10 or more feet thick. The vein filling contains many manganese minerals, but principally the carbonates. Great masses of rhodonite have been blasted out and broken up and disposed of. This rhodonite is said to rival in beauty the famous rhodonite of Ekaterinburg, Siberia, (now Sverdslovsk on the map) that was retained by the Emperors of Russia for their private enjoyment.

Bands of collectors have, however, raided the place the past 20 years and it is now difficult to find anthing, and will be, until mining is resumed.

ERNEST W. CHAPMAN

(Obituary Notice)

All friends of mineralogy will be shocked and grieved to learn of the sudden death of Mr. Ernest W. Chapman, Wednesday, September 17, 1947, at his home in South Pasadena, Calif.

An eminent mineral collector, Mr. Chapman has been a prominent member of the Mineralogical Society of Southern California since its beginning. His leadership and wise guidance have been materially responsible for the growth of the society and the high interest in the field of mineralogy which its members have maintained.

His beautiful mineral collection is well known to all mineral lovers and he was always generous in displaying it at gatherings and meetings. He was generous also with his time, and there are few mineralogical organizations in Southern California that have not had the privilege of hearing him speak.

It was his desire always and his belief that the amateur mineralogist in the serious pursuit of his all engrossing hobby could and should be of real aid in the advancement of the science of mineralogy.

He was most interested in the organization of a National Federation of Mineralogical Societies, and this summer was present at and lent his influence and guidance to the formation of such a Federation.

Mineralogy has lost a true friend with the passing away of Mr. Chapman, and his presence and counsel will be greatly missed in all mineralogical circles.

Pauline A. Saylor

THE JOYS OF THE SCIENTIFIC COLLECTOR

BY HERBERT O. ALBRECHT
Springfield, Penn.

It is not my wish to disparage the pleasures of mineral collecting, whatever the motives may be, but to suggest to those who find the words "science" and "study" dull or awesome some of the pleasures and advantages of cultivating as much science as possible in the course of their collecting. Most of the articles in this Magazine emphasize other motives,—hence perhaps a justification for writing of the scientific motive.

Many collect minerals (and other things) from vanity or possessiveness or even for monetary reasons. These people, in my observation, seem to enjoy their minerals least. Those who collect for esthetic reasons get more enjoyment, but this motive is a bit puzzling at times, as discussed below. Those who collect from burning curiosity are on the road to being scientists. And lastly the scientist, who, for a hobby, or professionally, studies his specimens to increase the fund of exact knowledge about them, has, I think, the deepest and most permanent joy in his minerals. Yes, I would look among professional (and perhaps blasé) crystallographers rather than enthusiastic new Rockhounds to find the richest appreciation of a fine specimen. Or perhaps I should say, more exactly, we must continually bolster and reactivate our hobbies by growing with them, if they are to be permanent. The scientifically-minded are taking the surest way to this end.

Not that the quest for beauty is less exalted than the quest for truth, but it, too, needs to be an expanding passion, and thereby takes on a quasi-scientific nature. When I see a collection of which the owner says, "They are so beautiful I can't resist them, but, of course, I'm not a mineralogist", I wonder at once, "But dear Sir, or Lady, what is their beauty—color-combinations, sparkle, patterns? If that is all, why don't you collect bits of glass, and concentrate on methods of brilliantly illuminating them, or better, why not make stained-glass windows? Cheaper, and still better, why not collect laboratory chemicals? They too have color and sparkle, rarity and curiosity, if you will, and are, after all, "natural formations". They fluoresce, too, with as much, and greater variety, than minerals". Or I may glance about the house and think, "If you love colors and form so, why do you give so little thought to their combination elsewhere; why do you neglect a garden with which your minerals could but feebly compete"?

I once saw "artificial" crystals, big as walnuts, a dozens kinds heaped on as many glass plates. Each plateful had a mere "ore-value" of a thousand dollars, or much more. These crystals were double cyanides of platinum, rhodium and other metals rarer than gold with such exotic alkali metals as yttrium and rubidium. These overwhelming objects had a greater combination of unusual visual properties in single materials, I should think, than one could hope to find again. They were richly and variously colored, they were strongly dichroic, their brilliance spoke of high indices of refraction, they showed contrasting metallic reflections, their forms were intriguingly complex, their developments perfect, and on top of all (believe it or not) they were highly fluorescent! These, I think, were by all odds the most beautiful inanimate objects, not fashioned by the hand of man, I have ever seen,—and be sure I am not excepting any crown jewels. And though I itch to possess such things as a miser itches for gold, I am more intrigued and satisfied with some things I *do* possess. Take, for instance, a plain little quartz crystal from Arkansas with little right and left trapezohedrons. These are both positive forms as I can tell by a faint etching and examination in bright sunlight, when the marvelous and intricate twinning pattern of the two kinds of quartz, each in two orientations, is fully revealed.

There are still many almost untouched problems in connection with minerals

which all for scientific ingenuity or "intuition". College may furnish the basic working knowledge, but *we* have to furnish the enthusiasm and habit of persistent reflection which make up this faculty. What state of iron (if it is iron) gives the amethyst its color? What conceivable method of growth or alteration caused its unbelievable structure of right and left quartz? Who will do a good job of merely classifying the sources of color in minerals? It must be said, these questions take more (not necessarily formal) scientific background than other equally useful and fascinating fields to which a Rockhound is exposed. Minerals vs. crystallography and paragenesis, rocks and fossils vs. geology, plant and animal life vs. evolution, Indian artifacts vs. archaeology, old buildings and ruins vs. history, —these are the juxtapositions and possibilities literally in the path of the Rockhound. Geology and evolution and archaeology are studies more adapted and significant to most people than crystallography or chemistry. So, new Rockhounds, for the sake of your greatest capabilities, don't neglect the other things you can see on your outings! The scientific person, too, has an overwhelming practical advantage on trips: his "localities" become nearer, more accessible, and richer as his interests broaden and deepen.

Mere collecting thus is usually the start—the first stage—of a hobby. Some people then become identifiers of minerals, rocks or plants—that is an excellent advance, but not a good stopping place. *Create* is the watchword. Make new discoveries, classify the finds. Feel the pleasure of grasping real personal meanings in the great principles of geology, evolution, or crystallography (if mathematics attracts you). And last-supreme ectasy—contribute our own small bits, if we can, to those great principles.

Well, here I am, and I haven't mentioned the activity closest to half of this Magazine's subscribers. It's creative, or can be, both artistically and technically, and I greatly admire some of its devotees. Will it last as a hobby, as well as a professional occupation? My guess is, yes it can and will, though we cannot hope that the eventual glut of its product will not dull somewhat the pleasure of producing it. So-just in case—have another hobby coming up. Why not, for instance, try mineralogy? The connection of your blanks and bezels and facets with mineralogy is very slight, when you come right down to it. Of course the ultimate thing for all of us is that we find and retain creative activities—in connection with our livelihoods or separate from them—which are not compulsory chores but sources of joy and freedom. No doubt the scientific collector should add an artistic handiwork to his repetoire, if his work does not already involve it.

In Memorium
HUGO WIENER

Born November 11, 1888—Died January 10th, 1947

Hugo Wiener died of a heart attack at the Veteran's Hospital, Tucson, Ariz., on January 10th, 1947. He was an enthusiastic mineralogist, and an avid collector; he endeared himself to everyone who had the privilege of knowing him by his kindness and consideration of others. He was an honorable man in the best sense of the word.

Too few people realize the debt which Mineralogy owes to Mr. Wiener. Starting from scratch in 1936, with no previous knowledge of minerals, he built up a mail order business extending throughout the United States and Canada which was instrumental in placing many fine and unusual specimens in the hands of collectors; he always prided himself on his satisfied customers, and it was not unusual for him to spend an hour to fill a mere $2.00 order. No little help in his business was his gradual aquisition of an expertness in the sight identification of minerals which many a trained mineralogist might envy.

Mr. Wiener had a deep faith in the intrinsic value of fine mineral specimens and was always ready to buy them, even, at times, at the expense of personal comfort. As a result he was largely responsible for saving for collectors large quantities of fine specimens from the famous Mammoth Mine, Tiger, Arizona, which would otherwise have been lost. It was also due to his enthusiasm and encouragement that many superb Mexican minerals were imported.

Mr. Wiener was an enthusiastic field collector until the very end and it may well be that his long treks with heavy sacks of rocks strained his heart. With his passing mineralogists lost a kindly and devoted friend.

Dan E. Mayers

SILVERTON, COLORADO, MINERALS

BY KARL HUDSON
Durango, Colorado

One of the most highly mineralized areas in Colorado lays within San Juan County of which Silverton is the county seat.

Silverton lays within a small valley at the junction of Mineral Creek and the Animas River and at an elevation of about 9,000 feet above sea level. Paradoxically it has the appearance of being quite low in elevation when compared to the mountain peaks rising from three to four thousand feet higher which surround it. Only the narrow canyon of the Animas cuts through this mountain barrier. Travel to and from the town by any other method than by the narrow gauge railroad which runs through this canyon is over one of the mountain passes which reach timber line or higher. Two of these passes, Red Mountain and Molas are crossed by modern highways. Others are not considered practical for motor travel at the present time.

The geological history of the San Juan Mountains is long and violent. Upon the pre-cambrian igneous rocks were laid shales, sandstone and limestone. Following this a general doming of the whole area occurred.

Active erosion cut and removed much of the sedimentary stratas. On this cut and eroded surface was laid the Telluride conglomerate.

A long period of violent volcanic activity came next which poured out andesites, rhyolites, latites, tuffs and basalts. Intrusive formations of diorite, monzonite, and porphyry penetrate these volcanic series and later a series of dykes occurred.

Following all this a system of faults and fissures were formed which became the vein systems in which was deposited the minerals of the region.(1)

Much of the area has been laid bare by erosion, and prospecting in the early days of mining was a simple matter, however it is believed that most of the exposed outcroppings of minerals have been located. A vast amount of tunneling has been done and in any direction from Silverton many waste dumps will be seen on the mountain sides all of which present a challenge to the collector of minerals. Exploration of side canyons will reveal many more and weeks could be spent in the area.

Since most of the older mines were operated for gold or silver, the gangue minerals were thrown out on the dumps and constitute a source of interest to the collector. Many of these old mines have long been abandoned and permission to collect from the waste dumps may be obtained from most of the others. Whether this policy of the operators is to be continued will depend upon the actions of those who collect.

Specimens in commercial amounts are generally no longer available, however many good specimens may be found by those who like to collect their own and are willing to work for them. Most of the present day mining is for low grade ores of gold, silver, lead, copper and zinc and does not produce good specimens to any great extent, therefore digging in the older dumps is indicated for the collector.

The long list of minerals reported from the area include the following; native gold, argentite, galena, sphalerite, pyrite, chalcopyrite, huebnerite, tetrahedrite, polybasite, rhodochrosite, rhodonite, pyrolusite, siderite, barite, fluorite, dickite, hessite, lollingite, alaskaite, cosalite, guitermanite, zunyite, stibnite and others.

There are very few waste dumps in the area in which one or more of these minerals may not be found, although not always in good specimens. Native gold and argentite are rarely found in waste dumps for obvious reasons. Ores carrying these minerals now being mined are mostly low grade although occasional specimens come out of the area. Galena in crystalline masses has been found near the foot of Red Mountain Pass grade, near Animas

SILVERTON, COLORADO

Forks, up Cunningham Gulch and other locations. Sphalerite also in crystalline masses is often associated with the galena. Pyrite in perfect crystals in green rock is found in a small gulch just south of Red Mountain Pass. Good crystals are also found in the dumps southwest of Silverton and many other localities. Chalcopyrite has been found in a small dump about three miles south of Silverton near the highway and in other localities. Tetrahedrite is sometimes found in small amounts with the chalcopyrite. Polybasite and rhodochrosite have been reported but are rare. Rhodonite is principally found near Eureka. Huebnerite has been found near Chattenoga, Cement Creek, in the dumps near Silverton and elsewhere. Pyrolusite is found on the Molas Pass grade about three miles south of Silverton. Stibnite has been reported from near Molas Pass. On Engineer Mountain north of Animas Forks green obsidian and a variety of jasper (neither of gem quality) is found.

Perhaps a systematic search of old dumps and prospects would yield many more varieties. This is a large mineralized area and an enjoyable rock hunting trip could be one of a few hours spent hunting huebnerite, pyrite, etc. in the old dumps near the south end of Silverton's main street or an extended vacation spent in exploring the surrounding mountains.

Accommodations may usually be had in Silverton although the writer prefers to camp near one of the many mountain streams during the summer months.

REFERENCE

(1) Professor Rusell D. George, University of Colorado "Geology and Natural Resources of Colorado". Page 102.

SPOTS PHOSPHORESCENT

BY CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Microscopic crystals of minerals are admittedly more beautiful and more nearly perfect, often in ideally formed crystallizations, than large crystals or aggregates of crystals. In many cases, the writer has tested micro material with a Mineralight, a short wave source of ultra-violet radiation without equal for obtaining phosphorescence in minerals. Often, after a short charge without the Corning 986 Filter in its slide-frame, minute but brilliant phosphorescent spots reveal themselves in the total dark.

A notable instance of pin-point afterglow was observed by the writer on the rounded top surface of the jade-green fused earth which was picked up near the central area of the first atomic-bomb blast at Alamogordo, New Mexico. Very brilliant blue-green extremely tiny luminous spots were spaced about one inch apart and only on the sky-ward side of the specimen. No other luminosity was noted. Any number of theories may be applied as to why these spots were there—and of what these spots were composed.

Some very much weathered laumontite and calcite, associated with prehnite, collected by the writer at the trap-rock quarries near Birdsboro, Pa., showed very small pin-point areas of phosphorescence of unbelievable brilliance. The decay period in most of the spots was much longer than the softer larger areas of after glow. An attempt to isolate the bright flash of light under a microscope was unsuccessful but it is believed that the flash of luminescence originated in a crystal of laumontite which nestled within an oura of micro calcite which in turn seemed to be pseudomorphic after chabazite.

Brilliant but very blue phosphorescent pin-point spots were noted in natrolite—stilbite—calcite veins in famous Kibblehouse Quarry specimens. These beautifully blue — indescribably blue — spots were traced to minute calcite crystals impaled on or trapped between elegant micro spears of acicular natrolite. Large massive chunks of such luminous material would be extremely attractive but no such large bright blue luminous pieces were found,although a satisfactorily blue phosphorescence in one inch thick white vein calcite from Kibblehouse Quarry is in the writer's collection. The Kibblehouse Quarry is in Perkiomenville, Pa.

SOMETHING NEW IN FULGURITES

BY JEFF HILL

108 Clifton Avenue, Louisburg, N. C.

Several unique specimens were brought to the author's attention recently by Mr. Thomas A. Oleszkowicz of 6969 Parkwood Avenue, Detroit, Michigan, who also wrote the author concerning the occurrence of these specimens which is the basis of this report and for which the author is greatly indebted.

On the evening of July 6, 1947, during a short but severe electrical storm, a lightning bolt struck a concrete sidewalk on McGraw Avenue near St. Lawrence Avenue in Detroit, leaving upon the light-colored surface a black streak about 44 inches long and about 2 inches wide. Along the length of the streak the concrete was superficially fused and blistered by the heat of the stroke into a crust of black glassy slag which is vitreous and brittle, resembling black obsidian. A few scattered bead-like specimens of sizes 1/16 to ¼ inches were gathered by Mr. Oleszkowicz and several cavities in the streak yielded other small specimens for examination. The material was of three types: 1) fused material encrusting the sidewalk, resembling splashes of hot tar, 2) loose material roughly spherical in shape but encrusted with light-colored unfused grains of concrete, and 3) a few tiny nearly perfect spherical beads, completely fused, opaquely black, and free of any adherences of the original unfused material.

The bolt (or streak) of lighting may have been attracted to the specific spot by iron piping underlying the sidewalk, and the duration of the discharge permitted the point of contact to shift along the direction in which the pipe ran, if this was the case, fusing a course of nearly four feet in the surface of the sidewalk. The subsequent turbulance caused by friction and heat resulted in some of the fused material being broken loose from the sidewalk and scattering during the discharge. Some of the material thus displaced fell back onto the sidewalk before the material had cooled and solidified, adhering to the sidewalk or absorbing into its liquid outer surface a coating of unfused concrete, while other particles reached the ground as solidified droplets and were found as clean glassy beads.

Except for the brief statements here given concerning its general appearance and the fact that the completely fused material seems to have a hardness of about 6, no other properties are evident or have been systematically determined. It is obvious, however, that a chemical analysis must coincide closely with that of the concrete itself, and the material must be optically isotropic.

One possible significance of this occurrence is that the specimens of the latter group resemble tektites in appearance, and the occurence would thus seem at first to add strength to the theory of the fulguritic origin of tektites as postulated by Dr. Virgil E. Barnes*. While it is far from the purpose of this paper to enter into the involved and lengthy debate of tektite origins, it must be stated that the fulgurite occurrence here discussed, however, underscores the unlikelihood that *all* tektites (if they were of fulguritic origin) would be found completely free of parent rock, even considering the great loss of mass by erosion in their estimated 2,000,000 years of existance on earth. All tektites found to date have borne no traces of parent rock, and this is one of the prime objections to its fulguritic origin; the microscopic lechatelierite inclusions are not considered an exception to this. And while the present writer does not ascribe to either the impactite or the fulguritic orgin of tektites, he does not wish to influence the reader in so brief an account to to take sides readily in the matter, but hopes, as does Mr. Oleszkowicz, that this account of a unique fulgurite will be of interest *per se*, and that is the real purpose of this paper.

**North American Tektites*, Texas University, Econ. Geol. Bur., 477-573, 1939.

IRIDESCENT LIMONITE IN CHALCEDONY

BY ED ROCHESTER
Winterhaven, California

Chauncy Squires first told me about this interesting mineral. Chauncy lives over in Orange, California, where he grows oranges. While he's waiting for the oranges to grow, Chauncy "chops-up" rocks with a diamond saw. Or else he's out in the desert hunting for rocks to "chop-up". Anything that Chauncy finds which looks pretty or unusual he "chops-up", and "maby-so" polishes. That's how he discovered the iridescent limonite in chalcedony.

Not out in the Mule Mountains, where he picked up a beautiful little carnelian chalcedony rose; but in his work shop in Orange, Calif., he found it.

Naturally the discovery that one of the little masses of botryoidal carnelian chalcedony when polished, would show an opal-like play of colors, called for more trips to the place where it was found. On one of these subsequent trips I was asked to go along. My pardner, Earl Kerr, accompanied us.

Both Earl and myself were familiar with the district; having passed thru it on numerous occasions, but never had prospected it. Our camp was made in a dry wash, beneath an ironwood tree. This wash cut deep into the mesa sloping westward from the Mule Mountains, in southwestern Riverside County, Calif. We were about 3 miles south of Wiley Well, and a mile or so north of the county line.

To the east of our camp, about one-half mile distance, were some dark colored hills of medium height for the district. "Malapai", the old time Southwesterner would call these hills. Which means that they are covered so thickly with boulders and cobblestones that walking over them is difficult. On the mesa to the west of these hills is where Chauncy found his iridescent limonite in chalcedony.

According to Chauncy these hills produced some fancy geodes, and a lot of large carnelian chalcedony slabs which when sawn lengthwise exhibit color and designs of exquisite beauty.

As we were ascending the lowest of the hills we noticed some of the little chalcedony nodules scattered among the boulders. And after searching a while we found some nodules imbedded in the decomposed rhyolite. The rhyolite is of a light grey color and appears to have undergone considerable leaching. The nodules occur in veins which make quartz a few inches under the surface. Apparently the chalcedony is a surface mineral secondary after quartz. Some of the nodules found in the veins showed "fire".

While Chauncy and I were investigating the hills, Earl was scouting the eastern slope of them, and the mesa beyond, to see if the nodules were present on that side. The east mesa slopes gently to the Colorado River bottom land. From the summit of the east-most hill we could see the river, winding serpent-like thru its broad valley.

That night Earl reported that "undoubtedly the iridescent limonite in chalcedony originated on the west and the north side of the black hills. And that they had been weathering out of the formation for a long period of time". Very few of them were to be found on the east side of the hills.

The three of us spent the next couple of days picking up nodules. It was slow work for only about 1 in a hundred would show color. Later we found that of the few we did select only about fifty per cent showed the iridescence.

From an examination of hundreds of these specimens we have decided that they are built up of masses of irregular thickness. Some of these masses are botryoidal in structure. Some specimens have several of the botryoidal masses separated by masses of a transparent material—the botryoidal masses are not transparent. The more of the little "bubbles" in the botryoidal mass the more different colors it will show and the more brilliant will they be.

There has been considerable controversy among collectors at first as to what

these specimens really were. Some thought that they were just what Chauncey Squires named them, "fire agates", and nothing more. Others claimed with equal fervor that agates do not exhibit a play of color as found in the precious opal. We have some of these stones which show brilliantly flashes of red, gold, green, blue, purple, and lavender. But all who have seen the polished stones proclaim them to be gems of exceptional beauty.

To determine their true identity, specimens were sent to the Editor of *Rocks and Minerals,* and to the California Bureau of Mines. Both sources reported that the "fire" was due to an iridescent limonite in chalcedony. The Editor had his specimen examined, also, by Dr. F. H. Pough of the American Museum of Natural History. Dr. Pough is keenly interested in new gem finds and for this reason the specimen was brought to his attention whose comments were: "It is chalcedony which has been coated with iridescent limonite, and then covered with more chalcedony. I am surprised that the limonite retained its iridescence."

The thinner, the mass of chalcedony covering the iridescence is ground, the more vivid the colors will be. But extreme care must be exercised not to grind too deep and cut into the iridescent coating. Some of the larger of the chalcedony—sometimes quartz—nodules have "nubbens" of "fire" on one end. These, when the "nubben" is polished, make beautiful cabinet specimens.

Now a word of caution to the collector wishing to visit this locality. Don't attempt it until you have made inquiries about the roads. They are bad at their best; but after heavy rains which sometimes occur in the region, a lot of pick and shovel work may be necessary to get out of a place that was easy getting into. Take the road to the Hauser Geode bed. When about 3 miles south of Wiley Well, turn east and you are there.

NEW LOCATION FOR COLLECTORS

BY T.O.L.

A large variety of minerals is to be found at the quarry of the Vermont Asbestos Mines in the serpentine rocks of Mt. Belvidere near Eden Mills in northeast Lamoille County, Vermont. There is an old quarry on the south side of the mountain but this was abandoned when a new working was opened on the southeast side. It is expected that 400,000 tons of asbestos-bearing rock will be produced during 1947. M. J. Messel, of Hyde Park, Vt., is the resident manager but the head office is at 500 Fifth Avenue, New York City, W. B. Harris, president, and L. C. Hugen, vice-president. The mining company is a subsidary of the Ruberoid Corporation which made a net profit of $1,134,233 for the second quarter of this year, or $2,211,402 for the first six months, representing $5.56 per share.

Recently a perfect crystal of vesuvianite was sent from this new Vermont mineral location to Elbridge C. Jacobs, State Geologist. In the late spring of 1946, Dr. Clifford Frondel, of Harvard University, visited the quarry and found specimens of the following minerals:[1] artinite, clinochlore, diopside, grossularite, leuchtenbergite, prehnite, pyroaurite, vesuvianite, etc. The quarry is noted for its very fine vesuvianite crystals which are considered to be about the best ever found in the western hemisphere.

Eden Mills is in the central part of northern Vermont. The best way to reach the quarry from New York City is to take U.S. Route 5 from New Haven, Conn., to Barton, Vt., then for about five miles and turn west when level with Orleans, which in east of the highway; proceed along Vt. Route 58 to Lowell, then south on Vt. 100 to Eden Mills (a little hamlet about 10 miles from Lowell), where a country or mining road leads to Mt. Belvidere, which is 3,369 ft. high.

1 Minerals from a Vermont Asbestos Quarry, by Clifford Frondel. *Rocks and Minerals,* August 1946, pp. 490-491.

THE AMATEUR LAPIDARY

ONYX HANDLE FOR LETTER OPENER

BY LUCILLE SANGER
1922 Newport Avenue, Chicago 13, Ill.

The paper knife, altho originally designed for the simple and artless task of opening the mail, has often been used, both in fact and in fiction, as a lethal weapon. Many a harried detective story writer has replaced the well-known blunt instrument with a fancy letter opener. These are usually of a dagger or sword pattern and thus have a legitimate excuse for having a sharp blade. Our recipe, contained herein, is confined to a dull blade with a handle which can be cut by any amateur lapidary.

Nearly any material can be used for this if it is hard enough to withstand wear. However, the average rockhound, altho having more imagination than people with a less artistic hobby or none at all, becomes a sturdy reactionary after having learned to cut cabochons or do some faceting as well as, perhaps, to make a little jewelry. In short, a timid mouse afraid to stray from the beaten path. It is for this reason that we have chosen one of the easiest materials to work as well as one of the most attractive. This material is onyx, calcium carbonate — lamp base stuff to you. It can be worked with a steel file by those who feel they cannot finish the grinding on the wheel. Minus the file, it is cut entirely on the regular cutting wheels and finished, to the polishing stage, by hand. If you are accustomed to cutting cabochons from templates, or of shaping them while they are on a dop stick, there will undoubtedly be difficulty in cutting this item as it is strictly a free hand job.

Choose a good plain or mottled color. Onyx is usually cut at the mine and is obtained by the cutter in slabs about an inch thick. Use one of those inch slabs, saw it to a width of about an inch and a half and a length of about five inches. Look it over carefully for flaws. These are hard to see on the rough piece as it has been cut with a mud saw or steel saw and this leaves the surface clouded. It is necessary to get depth on the surface to see if scales are present and how deep they are. To do this, place the piece on the fine grinding wheel and take off the rough surface. Wash well and place it on the felt wheel and work it with tin oxide until it is translucent enough for a thorough inspection.

It is now ready for the carving. Hold one end of the blank in the left hand with one end resting on the bench. Place the upper left hand corner between the thumb and forefinger. The thumb will be on the front. Place a piece of string under the thumb and hold securely. With the right hand, bring the string diagonally across the front to the right side and continue diagonally down across the back and bring around to the front. Repeat this process until the string reaches the bottom of the blank. Do not make the diagonals too close together. About two full times across the front and then across the lower left hand corner are sufficient. Lay the blank down carefully on the bench and with a pencil or an awl mark around it, following the string for a pattern. See Figure 1. We did not use this method as our model was made entirely free hand, but those who are not used to cutting free hand will probably need a guide.

Place the onyx on the right hand end of the coarse cutting wheel, starting at the place where the string was held in the thumb and forefinger. Follow the marked line on the edge of the wheel. Keep going around and around on this mark until it is about a quarter of an inch or more deep. The cut should be a continous V running around the onyx. With the V still on the wheel edge, press

the left side of the V against the front of the wheel and round the sharp edge. Then place the V on the left hand edge of the grinder and press the right edge of the V against the front of the wheel and round off that side. This process should be gone over and over again until there are nicely shaped cabochon surfaces between the grooves. The whole piece should have the effect of having been twisted. When the cutting is completed, the result is a knife handle carved in the round, tapering slightly toward the knife end.

Place the handle on the fine grinder and remove the coarse marks. The handle is now about four and a half inches long and ready for sanding. However, if the surface is not free of bumps, and these are too large to be removed by the hand sanding, then the worker can use a steel file to complete the grinding.

Use small pieces of 220 grit sanding cloth and work over the surface well, removing all the small ridges and bumps. This must be done by hand. If the electric sander is used, there is danger of blistering the onyx as well as raising new ridges and bumps. Use old pieces of 220 grit cloth for the finishing of the sanding. The sanding operation need not be at all thorough as it would for an agate or other stone, as the onyx is so soft it responds readily to the felt wheel.

Wash thoroughly. Polish on the felt with tin oxide and keep the wheel quite wet through the process. Onyx will blister easily on the felt wheel if it gets hot. When the piece has a brilliant polish, set it by letting the felt wheel run dry while still working the handle on it. This must be done with great care. Commercial onyx workers put a few drops of oxalic acid in the tin oxide and water solution. When the polishing operation is completed, the handle is ready for drilling. See Figure 2.

Use a steel woodworking drill and make a hole in the small end about one inch deep. This will require the help of a second person to hold the stone firmly. If it is held in a vise or clamp, it is likely to fracture.

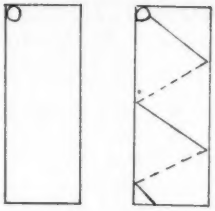


Fig. 1.

Fig. 2

The blade can be made of sterling but copper brass is advisable for such an inexpensive material. Also the soft warm colors of the cheaper metals looks much better with the usual onyx colors. The model was made of light green onyx with a copper blade.

To make the blade, cut a strip of metal six inches long and an inch and a quarter wide. Make a pattern to fit this shape and draw around it. Saw out with the jeweler's saw. True up the edge with a file. File the stem end until it is a good snug fit. File the edges of the knife sharp, but far from razor-like. Polish the blade (but not the stem) with polishing grade emery paper. Wash well and buff on the muslin buff with rouge. Do not buff the stem. Hold the edge of the blade against the buff and buff well. When buffing the blade, lay the blade on a block of wood so it can be pressed hard against the buff without bending.

When a bright finish has been attained, wash in warm suds, rinse, dry, file the stem to rough it and cement to the handle.

ENJOYS ROCKS AND MINERALS

Editor R. & M.:

I've thoroughly enjoyed subscribing for *Rocks and Minerals* these past two years and hope to continue for some time to come.

William Waisberger
Sept. 5, 1947 Lawrence, Mass.

KEEP ON GOING WITH MINERALS.

Editor R. & M.:

Mixed with the pleasure of outdoor chipping and indoor labeling, *Rocks and Minerals* has something which inspires that "keep on going" with minerals. That "keep on going" spirit coupled with the "keep on reading" eventually makes for better specimens.

Lester W. F. Peper
Sept. 10, 1947 Spring Valley, N. Y.

WHAT CONSTITUTES A GOOD MINERAL SHOW

BY J. J. BROWN, President
State Mineral Society of Texas
302 Walton Bldg., Austin, Texas

First, we think that much visitation must be done by the Presidents of State Mineralogical Societies among the members asking for their cooperation and suggestions. These visits should make the members feel that the shows are something that they have helped plan and are expected to take part in. Among the subjects discussed could be what particular fields that they are most particularly interested in, types of display to be shown, time of the year for the show, etc.

It is our feeling that the cooperation of all local societies must be secured and that they must have a part in the planning of the show.

In nearly every state there is a College of Mines and other institutions of higher learning which have Departments of Geology, as well as local museums in the state, and we think that their cooperation should be sought.

Here in Austin we have a wonderful department of Economical Geology connected with the University of Texas where may be seen all types of building material which is tested for its tenacity, strength, and beauty, and the head of the Department of Economic Geology is anxious to do all that he can towards the promoting of a Mineral Show.

It seems to us that there should be a strong coverage in all the local papers and the state-wide papers, as well as farm journals. In our state we have 675 newspapers, four of the daily papers being written in foreign languages. We also have two or three farm papers that have a large circulation going to every farm home in the State of Texas.

Texas has a population of around 7 million people and we have many, many Chambers of Commerce which we believe will be glad to give desirable publicity to a state mineral meeting.

We have around 47,000 school teachers in the State of Texas and surely a timely article prepared for the school journal that goes to every school teacher in the State of Texas would bring many groups of school children as well as teachers to view the mineral show from an educational standpoint.

While Texas is not known as a mining state, we do produce many products which are widely used in the field of manufacture. Our clays are forging to the front from a ceramic standpoint, and are used extensively in drilling oil wells for what we term "mudding-in process." As an example of interest, we were in a little town near Austin a few weeks ago and heard that many rockhounds from all over the United States visit that town for the purpose of securing lanoite, locally known as opaline, a grayish granite that has blue specks scattered throughout it. As far as we know, lanoite is only found on two or three acres on the globe, all these are near this small town.

In this same small town, every day we are grinding soapstone, mixing it with DDT and selling the product (DDT powder) by the carload all over the United States.

We are grinding every day magnesite, burning the same, and shipping it as a fertilizer to Florida.

We grind enormous amounts of granite which is sold as grit to poultry farmers. We have one farmer living in a town near Austin who has under his supervision 50,000 hens, and you can see at a glance that these large poultry farms require an enormous amount of grit (which takes the place of teeth in their poultry flocks.)

We have in Texas deposits of celestite, barite, gypsum, fluorspar, manganese, dolomite, and mineral and polishing materials. We also have in the Big Bend section many cinnabar mines

We merely mention the above for the simple reason that we believe the persons who are operating these industries would be glad to have displays and be equally glad to join our Society after viewing a good mineral show. In other words, we

hope to get the economic geologists in our state interested in our mineral show next spring.

May we state here that we have never met a mining engineer in the State of Texas who was not interested in our little Society, and we feel sure that they will contribute in more ways than one towards the success of a good mineral show.

The majority of our members make their own lapidary equipment, and frankly, it seems to us that amateur lapidaries should purchase equipment made by those who are in the equipment business up to their necks. Therefore, it seems to us that any state mineral show worthy of the name should invite and encourage the supply houses and equipment companies to have a display of their equipment and their supplies; *furthermore,* we do not think that they should be charged for space. We furthermore think they should be given every courtesy at the time of their visit in the state.

May we state that we also think leaders in the field of publications dealing with rocks and minerals should be invited, such as the editors of the *Mineralogist,* the *Earth Science Digest,* the *Lapidary Journal,* the *Desert Magazine,* and certainly the editor of *Rocks and Minerals.* All these magazines mean so much to each person interested in the field of rocks and minerals.

We feel sure that a good mineral show would be incomplete without a display properly arranged of fluorescent material so that all persons would have a chance to really see the beauty of this fascinating subject; furthermore, the fluorescent room should be so arranged that all types of short and long wave equipment would be shown to the best advantage. It is our opinion that many persons visiting a mineral show are only mildly interested, but after viewing many specimens in the fluorescent room their interest might be aroused to the point that they would subscribe for a magazine that would increase their desire to have more knowledge. Therefore, we think that the leading magazines dealing with anything in the mineral world should be on display with subscription blanks and an attendant, perhaps a Boy Scout or a Girl Scout, who would take subscriptions. Not only the various magazines, but we think there should be on display at least a twenty foot book shelf, filled with the leading books on rocks and minerals.

Above everything else, in our own mind, we feel that one of the most interesting items for a mineral show would be a well-trained lapidary with desirable equipment and desirable cutting material busy at work during the entire show, so that each one would have a chance to really see how rocks are sawed, trimmed, sanded, and polished. It is our opinion that people like to see action and that a good lapidary at work would certainly attract attention.

We also would like to see a silversmith busy at work making rings, pendants, bracelets and other items which would have as the feature of such articles beautiful stones.

We surely feel that there should be a nice exhibit of the finished product that comes from the field of lapidary work.

May we also state that in our own opinion whatever is shown, whether it be bracelets, rings, slabs, cabochons, or specimens of rocks, that substantial arrangement should be made whereby a person shipping material for display would not have a fear that someone would pick up articles that did not belong to him. May we further say here in connection with this matter that some plan should be worked out where there would be greater uniformity of show cases. In other words, avoid having one person with an old candy case, another with a discarded buffet case, another with a built-up book case, another with a whole display case, but instead try and get each member to purchase a portable show case. Furthermore, we think that the duty of the President of the Society should be that of attempting to find out whether or not portable show cases could not be made in great quantity and sold to each member at cost.

Above everything else, we think that

the entire show should be one that would be inexpensive and would want to avoid registration fees, entrance fees, exhibit fees, space fees, and least of all, a three or four dollar cover charge for a long drawn out banquet.

It is our opinion that persons who have mineralogical material to sell should be encouraged to ship samples of whatever they have to the show so that persons viewing them could see at a glance where they could be purchased.

May we say in conclusion that we think anyone who has good things for sale should be given space for the sale of their products; however, we think that material of poor quality should not clutter up the show room. On the other hand, even though their slabs may not be the finest, or their rings the best, if a person wants to show such articles we believe they should be encouraged to show the same.

We noted the pre-announcements of several mineral shows this year stressing the fact that a committee would give a rigid examination and not allow anything to be shown that they did not consider to be the best in that field. We think this is an error and will encourage each person to show what he has to show.

We think that in addition to the general exhibit of the various products of the various exhibitors that there should be space provided for a general display, and certainly this display would have to have quality. As an example, we would want to invite the Witte Museum at San Antonio to display an amethyst which they have in their museum—a large richly colored amethyst perhaps three feet across, weighing several hundred pounds, which was secured from a cave in Brazil. We know of one of our members who has a banded agate weighing around fifty pounds. We have another member who has a beautiful selenite specimen. It is along this line that we have reference to when we say that there would be an exhibit of unusual and outstanding specimens.

We think that by all means the President of each Mineralogical Society, or the Secretary, or perhaps both working together, should issue a news letter telling about new members, about new locations, field trips, new lapidary shops that may have been started by some members, etc. In other words, we think that this News Letter should tell what the other members of the Society are doing, and should certainly tell about any new publication of note. As an example, this year we were fortunate to have sent to us a large number of copies of KRUSTALLOS, A Story of Quartz, by the August E. Miller Laboratories, No. Bergen, N. J. We think this to be one of the nicest publications that we have ever seen; however, please remember there is a great deal that we have never seen.

We also were fortunate in securing a large number of copies of STEELWAYS which had an excellent article upon the use of rocks in making steel, with beautiful colored pictures of rocks. We think that the President of a Society should always be on the look-out and should encourage the members to be on the look-out for any article dealing with rocks and minerals so that the good word can be passed on in the News Letter.

Fluorites to England

Dr. W. Campbell Smith, Sc.D., Keeper of Minerals of the British Museum (Museum Natural History), Cromwell Road, London, England, has perfected an exchange of British Fluorescent minerals with Col. Fain White King, 2700 Washington, Cairo, Illinois, for very fine Kentucky-Illinois fluorites. A special display of various colors of Marion, Kentucky and Cave-In-Rock, Illinois Fluorites, is contemplated by the British Museum and as Col. King has the greatest known collection of fluorites from his district, the British Museum asked him for a complete cross section of colors and types. We think of England for fluorites so this is somewhat like hauling coal to Newcastle(?).

CLUB AND SOCIETY NOTES

Attention Secretaries—If you want your reports to appear in the December issue, they must reach us by November 15th—the Editor.

Pacific Mineral Society, Inc.

MR. GEORGE BUNTON SPEAKS ON "MAGNETISM."

At the September, 1947, meeting of the Pacific Mineral Society, Inc., Mr. George Bunton, Chief Technician at the Griffith Observatory in Los Angeles, spoke on "Magnetism." During the war Mr. Bunton worked in the testing laboratory of Lockheed Aircraft Corporation, developing magnetic methods of testing metals used in airplane construction. One of the important jobs was the installation of the compass in the plane in such a way that the electric currents of the plane's wires affected it the least. Also, due to the varying magnetic force at various points on the earth's surface, corrections had to be made for different locations on the plane's course. Mr. Bunton's talk itself was "magnetic" and enlightening. The subject of magnetism is a wide one and the history of it goes back to the Chinese, who early discovered the lodestone and made the first compass, which was a figurine, its arm outstretched, standing on a cart. They put lodestone in the arm in such a way that since it was free to revolve, it pointed to the south. Thus, no matter which way the cart was going, the little figure always pointed south.

Mr. Bunton said that there is a great deal of uncertainty as to what causes the earth's magnetism. There are a number of theories, but none of them seem to give an adequate explanation. As to astronomical observations, it is known that magnetism exists in the stars and also that the sun spots have a pronounced effect on the earth, causing disruption of radio, telephone and cable operations. Magnetic storms are caused by these sun spots, which appear to have an eleven year cycle.

In discussing the theory further, Mr. Bunton showed that magnetism is very closely tied up with electricity, one of the great differences being that it is possible in electricity to have a negative charge off by itself without a corresponding positive charge, or vice versa, but with a magnet there cannot be a north pole or positive end without a corresponding negative one. Also, a bar magnet may be cut up into many smaller pieces and each individual piece will have a positive and a negative pole. In explaining magnetism, he told us that each iron atom is a little gyroscope, due to the revolving of the ions and that in ordinary iron, the axes of these atoms are pointing in all directions, but if these are all made to point in one direction, then the piece of iron is converted into a magnet. The life of the magnet depends on how tightly these atoms of iron are held together; or in other words, caused to remain in that particular plane. With very soft iron, they are easily lined up, but just as easily lose their alignment when the aligning force is removed. This is the principle used in electro-magnets that pick up iron and steel and then drop their load as soon as the current in the coil surrounding the central core is cut off. This is called induced magnetism.

Mr. Bunton had a very sensitive instrument for testing the magnetic field and he performed an interesting experiment using this and a piece of iron about 3 feet long. When this rod of iron was held parallel to the magnetic force of the earth, it became a magnet and had a pronounced effect on the instrument. However, the magnetism was only temporary, there being no residual magnetism left when removed from the line of force. However, to prove to us that some more of the atoms would line up if given a little assistance, he again held the bar of iron parallel with the magnetic force of the earth and gave it a sharp blow with a mallet. This jar was enough to allow some of the more resistant iron atoms to align themselves with the lines of force and the bar then had residual magnetism and would affect the instrument when held across the earth's magnetic field. However, on again hitting the iron with the mallet while across the magnetic field, the iron atoms snapped back into their original position and the bar lost its magnetism.

Mrs. O. C. Smith
Pub. Chairman

Akron Mineralogical Society

The Society's September meeting at the home of Mr. and Mrs. H. C. Johnston, turned out to be very interesting and educational

Dr. Paul Acquarone, of Akron University, took charge of the meeting. After a summing up of the events of the past year by the new officers and discussions of bigger and better plans for the future, there were interesting talks by members on their field trips and activities during the summer months.

Mr. Wilber Moon, of Mogadore, returned recently from a trip West covering 18 states and travelling 8,000 miles. He brought back very beautiful specimens from different parts of the country. E. O. Lieghley told about his trip and experiences in Florida and displayed some unusual specimens. B. M. Brehm, of Warren, and S. H. Adams, told of their trip to Canada. George Bose and others had interesting experiences and tales to tell about their travels.

Diamond cutting was illustrated by Mr. Johnston which was of great interest to all.

The Club boasts of a large increase in membership within the past year.

Mrs. C. R. Violette

Mineralogical Society of Southern California

"Fluorescent effects of Ultra-Violet Light" was the subject of the lecture presented by Mr. Thomas S. Warren, President of the Ultra-Violet Products Company, at the September, 1947, meeting of the Mineralogical Society of Southern California.

Sunlight, explained Mr. Warren, when passing through a triangular prism of glass is split up into rays of light of all the colors of the rainbow. These are the visible light rays and measure approximately 4,000 to 7,000 angstrom units. Beyond these visible rays at both ends of the spectrum lie the longer rays of infra-red light and the shorter rays of ultra-violet light. The latter, measuring about 2,000 to 4,000 A., products the fluorescence in minerals.

Mr. Warren went on to explain that fluorescence is the color response seen when an activating source of light (Ultra-violet) shines on a rock or mineral; and that phosphorescence occurs when this color response continues after the activating source is removed. What really happens is that the electrons within the substance absorb energy from the ultra-violet rays striking them and move to a different circle of revolution. As they do so they release energy that is seen as color. Sometimes they keep this abnormal position of revolution for some time after the activating light has been removed and return slowly to their normal orbits. Such an occurrence causes rocks and minerals to glow for seconds, minutes or sometimes hours after the ultra-violet light is taken away and thus are said to phosphoresce.

An audible sigh of appreciation could be heard from the audience when Mr. Warren then turned his ultra-violet light on his collection of fluorescent specimens. Brilliant colors glowed in startling beauty from the darkness. The Franklin, N. J., materials such as calcite and willemite were well represented. Wernerite, scheelite, opal and many others made up this beautiful display. Polished pieces were shown, the polish helping to bring out the fluorescence even more brilliantly.

Mr. Warren then showed how the presence of these short ultra-violet rays, invisible to the human eye and yet responsible for this beautiful play of color, could be proved. By placing an ordinary piece of window glass in front of the Mineralight the short ultra-violet rays were screened out and the specimen on which the light was trained lost its brilliance. Short Ultra-violet wave lengths are absorbed by all glass—pure quartz and the special filters with which the lamps are equipped being the only materials that allow them free passage.

Another experiment with a specimen of Hackmanite from northern Canada was demonstrated. This specimen, at first a light pink color, was exposed to the Mineralight for only a few minutes and turned a deep purple. This color change is retained as long as the material is kept in the dark but when exposed to sunlight or artificial light slowly returns to its former color. Hackmanite is the only mineral known to do this and this process is known as reversible photosensitivity.

During the war years with our import of tungsten cut sharply, the Mineralight proved its value in its aid in the discovery of new scheelite locations in our own country. Armor plating that could flatten out other shells was easily penetrated by shells equipped with tungsten pegs and this use as well as the many others called for an ever increasing supply. Today the demand still exceeds the supply. The presence of uranium can also be detected by the Mineralight and with the use of heat and a willemite screen the presence of mercury can be proved too.

That fluorescent displays can be breathtakingly beautiful Mr. Warren illustrated with his own display. He suggested that collectors arranging their own fluorescent displays keep a black background and avoid crowding. There are few collecting localities that will not yield some fluorescent material; so the ambitious "rockhound" equipped with a portable Mineralight can continue his collecting long after the sun has set.

Mr. Jack Streeter, newly elected Treasurer of the New Federation of Mineralogical Societies, reported on the organization of this long awaited Federation. It will include all the United States and Canada as well as Latin America if they wish to come in. The preliminary work on the constitution has been done and the first convention slated to be held in Denver sometime in June, 1948.

Pauline A. Saylor
Covina, Calif.

Texas Mineral Society:

AUGUST MEETING

Mr. Boone, head of the geology department of North Texas Agricultural College gave a talk on minerals and their identification. Mr. A. O. Phipps, a member, led a discussion on fluorite.

A plan was initiated whereby a door prize would be given at each meeting. Some member will donate a specimen each month and names of those present will be drawn to determine who wins. This plan has stimulated a considerable amount of interest in attendance at the monthly meetings. Prize donated by Mr. Anderson won by Mrs. A. O. Phipps.

SEPTEMBER MEETING:

Mr. Chester A. Howard, local Astronomy expert, lectured on that subject, especially regarding the sun and its composition and the mechanical movements of worlds. He showed some very good slides taken of the various stars and suns. Messrs La Dew and McIver, members, gave short talks on opalized wood and agates respectively.

The door prize donated by Mrs. Wm. LaDew was won by Mrs. R. C. McIver.

Ralph D. Churchill
Secretary

Four Corners Rock Club

The Four Corners Rock Club Show, held in Durango, Colo., during the annual Spanish Trails Fiesta celebration, was a wonderful display of minerals, hobbies and resourcefulness. Even the members were surprised by the manner in which, like Topsy, it "growed".

The Club is very new, having been in existance only since January 1, 1947. It was organized, not so much by commercial dealers, but by men from every walk of life—ministers, mechanics and milliners.

The enthusiasm which was shown throughout the Rock Show is typical of the manner in which the Club moves. In the single summer of their organization, they have made trips which may require 200 miles of driving in a single day, and, true to their name, have traversed the territory where the four corners meet. Their travels have taken them into Arizona, New Mexico, Utah, and they have further explored their home state of Colorado.

The first Rock Show held four Commercial entries; 20 displays entered by "rockhounds" and 20 unrelated hobbies. A native gold ore exhibit which is valued at $8,000 was entered for the Show, as well as a $6,000 collection of Navajo and Mexican rugs.

The miscellaneous hobby show was an interesting conglomeration of stamps, post cards, quilts, souvenir match covers and paper napkins.

A unique collection was that of buttons. These were laid out according to color and size and were really very attractively placed.

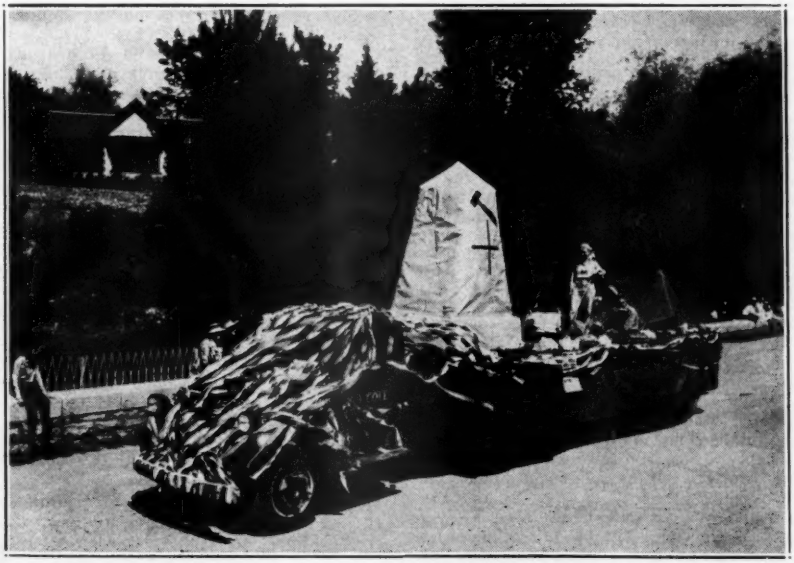
The courage of the Club is well exemplified by one commercial dealer, who, just a week before the show, was burned "out of house and shop", so to speak. His place of business, as well as his living quarters, were completely beyond salvage, yet he entered a large and beautiful display in the Show.

Also on exhibition were specimens and tips on archeology by two of the San Juan Basin's foremost archeologists, Rev. Homer E. Root and Zeke Flora. A portion of the Root collection is now resting comfortably in Smithsonian Institute, while Zeke is the discoverer of the world-famed Esther, one of the most perfect mummies in captivity. Esther is at home in the museum of Mesa Verde National Park.

In their spare time in the week preceding the Fiesta celebration, the Club managed to construuct a float which won second place in the Club Section of a fifty-entry parade during the Fiesta.

Over 4000 persons registered their attendance at the Four Corners Rock Club Show.

Virginia Duggan



Float of the Four Corners Rock Club (with its emblem) which won 2nd prize in a fifty-entry parade during the Annual Spanish Fiesta Celebration held in Durango, Colo.

Queens Mineral Society
8501 118th Street, Richmond Hill, N. Y.

The Queens Mineral Society began its summer schedule of field trips combined with regular club meetings held at the locality visited. The program began with our visit to the Gillette Quarry at Haddam Neck, Connecticut on June 15th, 1947.

Many of the members made the trip and had the pleasure of listening to our guest speaker, Dr. Helen Stoobe of Smith College, talk on the geological aspects of the locality and comparable areas.

Dr. Stoobe discussed the strategic value of soda feldspar, the simple and the complex pegmatites, the many minerals associated with this type of deposit, the re-action between the country rock and the pegmatites.

The order in which minerals crystallized out of the solution and the temperature involved, the effects of mineralizers such as fluorine, and boron, the disposition of the minerals left in solution, comparison with English formations and estimated age of the deposit were discussed fully.

After Dr. Stoobe had answered the Questions presented, a rising vote of thanks concluded the meeting.

JULY MEETING

A trip to Franklin, N. J., was made and many fine specimens collected on the Buckwheat dump.

Among the minerals collected were zincite, tephroite, rhodonite, various colors of willemite, fluorescent calcite, sphalerite, franklinite, garnet, amazonite, pyrite, clinohedrite, caswellite and calcium-larsenate.

The members had a fine time and well filled packs at the end of the day.

No group activity was undertaken by the society in August since a great many of our members were away on collecting trips. It is our plan to have members exhibit the best material collected personally this year, and to award two prizes. Exhibits will be judged based on the rarity, method of exhibition and general presentation.

SEPTEMBER MEETING

As scheduled, the Queens Mineral Society held its first meeting at our meeting room after a series of outdoor meetings combined with field trips.

Mr. and Mrs. E. Marcin were awarded first prize in our membership exhibit of specimens personally collected in the field this year. Mr. and Mrs. Marcin had prepared an outstanding exhibit, complete with maps of the localities they visited and among the minerals in their display were the following: Single and twin XLS of Cassiterite, a large XL of Manganotantalite, from Irish Creek, Va.; XLS of blue Apatite and XL of Microcline from Amelia, Va.; Cymatolite and a Spodumene XL from Branchville, Conn.; a large XL of Wolframite from Trumbull, Conn.; and Garnet XLS, from W. Redding, Conn.

Curt Segeler, our president, was awarded second prize with an attractive display featuring a fine large XL of Triphylite. He also exhibited Purpurite, Babingtonite XLS, Turgite, fine XLS of Prehnite and specimens of Uraninite, Gummite, Uranophane and Torbernite.

The Messrs. M. McKown, H. Vogt and A. Koerber also had fine displays and in their exhibits excellent examples of the following species were seen. Drusy quartz casts after anhydrite, tourmaline of various colors, albite XLS, kyanite, magnetite XLS, talc, actinolite, tremolite, chalcopyrite and pyrite XLS, vesuvianite, chondrodite, graphite, chalcocite, malachite, jasper, hematite and specular hematite, diopside, anorthite, wollastonite, pyroxene, rose quartz XL, chrysoberyl, cesium beryl, beryl, siderite, XLS, carnelian, eosphorite and gahnite.

William Stadler
Secretary

East Bay Mineral Society, Inc.

The East Bay Mineral Society held its first meeting of the new term on September 4th devoting the evening to business matters especially the drafting of a new constitution and by-laws. Members who had been on vacation and collecting trips gave short descriptive talks of their experiences and showed specimens of the new material they had secured by collection or purchase.

"Jasper Joe" Thomasberger won a jasper cabochon donated by Burr Porter as a prize for giving the best and most humorous description of his trip.

The second meeting to be held on Monday, September 22nd at Klees Smorgasbord Restaurant in Oakland will witness the annual installation of officers. Visitors are expected from other societies and an attendance of 125 is expected.

The first meeting in October will be both unusual and an outstanding event. Dr. Olaf P. Jenkins, State Mineralogist, will lecture and discusss the geology of the Bay Area. Dr. Jenkins has had years of experience as a practising geologist and is well qualified to inform us. This will be on October 2nd and will be followed on Sunday, October 5th by a Field Trip to the Berkeley Hills where Dr. C. W. Chesterman, a state geologist, will show in place and give further geologic information on the subject as introduced by Dr. Jenkins. This will be the first time in our society history to have such an opportunity for field work under such competent direction.

Second meeting for October is yet to be announced. All meetings are held at the Lincoln School in Oakland, Calif., and visitors are always welcome.

D. E. Cameron
Corresponding Secretary

Los Angeles Lapidary Society (Annual Picnic Held)

Some 400 rockhounds arrived at Oak Grove Park near Pasadena, Calif., on Sunday, September 14th, 1947, to enjoy the first annual picnic sponsored by the Los Angeles Lapidary Society.

What a picnic! A regular old-time geode gathering "gab-fest" complete with its bounteous lunches, hilarious games, nodule races and rock-necking contest.

Then, of course, came the exciting time of the prize drawing and the awarding of the door and game prizes. Some of which were a pair of fourteen karat gold earrings set with blue Zircons, an Alexandrite ring mounted in fourteen karat, a blue Spinel ring mounted in gold, a number of pins and broaches some with faceted stones and others with beautiful agates and other fine stones, a brand new cut-off saw, diamond saw blades, several laps for the faceters, Riker mounts filled with choice cabochons, good cutting material of all kinds and a number of beautifully cut faceted stones. There were about 200 prizes in all, valued at over $1,000. The prizes were donated by the members of the Los Angeles Lapidary Society, two members of the Old Baldy Mineral Society and the following dealers in lapidary and gem materials: M. D. R. Mfg. Co., R & B Art-Craft, Allen Lapidary Equipment Co., Hickerson Supply, J. J. Jewelcraft, Theodore's, Grieger's, Highland Park Lapidary Supply, S-T. Gem and Mineral Shop, The Lapidary Journal, Ultra-Violet Products, Chuck Jordon, Ed. Hickey, and Valley Craft Shop.

Most of the rockhounds in the southern area were there. Sixteen societies were represented. The presidents of the following societies were introduced: Jack Gaston, Los Angeles Lapidary Society; Dan White, Glendale Lapidary and Gem Society; Tom Daniels, Faceteers; James Arnold, Hollywood Lapidary Society; Mrs. Dorothy Pettis, San Pedro Lapidary Society; Mrs. W. L. Cooper, Secretary representing Chas. Clarke, president San Fernando Valley Mineral and Gem Society; Albert Hake, Southwest Mineralogical Society; Clarence Chittenden, Santa Monica, Gemological Society; C. D. Gibson, Lockheed Rock Crafters Society; W. Ellis Johnson, Old Baldy Mineral Society; Howard Barnes, Corona Del Mar Lapidary Society (new); Fred Kruger, Pomona Valley Mineral Society; Robert Gunter, Gem Cutters Guild. Many members of the Los Angeles Mineralogical Society, Mineral Society of Southern California. The San Fernando Mineral and Gem Society, and the Pacific Mineral Society were also present.

It is planned that this picnic will become an annual affair so that the members of the various societies may have an opportunity to become better acquainted.

A large part of the credit for the success of this affair goes to the Picnic Chairman, Ted Bennett and his hard working committee.

DO NOT MISS IT NEXT YEAR.

Willella Gunderson
Pub. Chairman

Rocks and Minerals Club of Woodstock, Vt.

Though our August meetings were quite routine, the month's field trip proved to be the highlight of the season.

Journeying to Maine over the 30th and 31st, we called at Trap Crs., Paris, Me., and had an interesting talk with the mineral store proprietor, Mr. Stanley Perham. His display of gem tourmalines, gold specimens, fluorescent materials, and museum size pieces of beryls, rose quartz, aquamarine, and grossularite garnets (large as walnuts) in the matrix proved immensely interesting. We bowed to desire and came away with a calcite xl. with marcasite, a lovely chiastolite, and a green tourmaline xl.

Asking directions, we motored to E. Sumner and visited Mr. David Stewart, a Harvard student associated with Peabody Museum and a member of several of our New England Mineral clubs. It was with deep regret that we broke away from his maps, collection, and stories to continue our course.

Next we followed Mr. Stewart's suggestion and drove to the entrance to the Newry Mt. area about three miles up Me. Rt. 5 from U. S. Rt. 2. The remainder of the day we spent very profitably locating specimens of triphylite, dendritic feldspar, spodumene, smoky quartz, the micas, rodochrosite, tourmaline, and aquamarine. With more time, less rain, and a greater knowledge of occurrences, we could havve added further to our collection.

Sunday we raced out of the rain area and on south to view the famous commercialized "Desert of Maine". As we tramped the length and breadth of sand it was most interesting to note the erosion, dunes, desert polished pebbles, and different colors of sand.

Our next stop was to be the ocean-faced jut of richly mineralized rock at Ogunquit; however an untimely flat tire forced us to postpone this attraction.

We hope that many others may some day enjoy as fine a field excursion as we did.

Ronald W. Gallup
Club Advisor

Pomona Valley Mineral Club

POMONA VALLEY MINERAL CLUB enjoyed a picnic in La Verne Park on July 13. Members displayed cabochons and sawed slabs. About twenty-five members and friends attended.

On August 10, thirty-two members and friends made a field trip to Wrightwood in quest of Actinolite. After a picnic dinner at Big Pine, many knapsacks were filled with fine specimens of actinolite.

Edythe M. Thompson
Pub. Chm.
Pomona, Calif.

ARIZONA STATE FAIR TO HAVE MINERAL SHOW
Nov. 7th — 16th, 1947

Arizona's first open competitive mineral exhibit will be a part of the program in the Mineral Building at the Arizona State Fair, Phoenix, Ariz., November 7th to 16th inclusive. Because of the limited space which can be devoted to this exhibit it is necessary to restrict entries, this year, to residents of Arizona. It is hoped that next year at least twice as much space will be available.

The permanent exhibit, which occupies most of the main floor, was rehabilitated and rearranged for the 1946 fair by volunteer labor of members of the Mineralogical Society of Arizona. Supplementing the permanent collection, which together with the building was donated to the Fair Commission by the principal mining companies in Arizona, twelve additional cases were filled by Arizona collectors, principally members of the Mineralogical Society of Arizona and the Yavapai Gem and Mineral Society of Prescott.

In this first open mineral show especial emphasis is to be given to exhibits by the grade schools. Any Arizona grade school may enter one exhibit of not more than 25 specimens. In addition to the usual ribbons offered by the Fair Commission, the Phelps Dodge Corporation has provided a perpetual trophy in the form of a plaque which will be awarded to the school having the most outstanding exhibit. The name of the winning school and the year will be engraved on the trophy which will be kept by the school until the next Fair. Then it will be returned for exhibition and re-awarded.

High school students may make one entry in either or both of two classes, (a) ten cabinet specimens or (b) one standard box of thumbnail specimens. Two standard boxes of 24 specimens may be entered in place of the one box of 50 thumbnails.

Four classes are open to adults, (1) ten cabinet specimens, (2) one box of 50 or two boxes of 24 thumbnails, (3) 25 cabochons, (4) ten polished slabs.

There are no fees for entries in this department. In each class of exhibits ribbons will be awarded as 1st, 2nd, and 3rd prizes.

A. L. Flagg, President of the Mineralogical Society of Arizona, is Superintendent of the Mineral Department of the State Fair

Chattanooga Rocks and Minerals Club

On Sunday. August 30, 1947, a picnic party of rockhounds under the leadership of Mr. Otto Gutenson, met at the University of Chattanooga for a field trip to the Tennessee Copper Company mines at Ducktown, Tenn. This district was first opened about 1843 when gossan was discovered and iron was thought to be the only ore present. A history of this area is given in "Ducktown in Raht's Time." Before sulphuric acid was produced, the sulphur fumes were allowed to escape with the consequent destruction of all trees, vegetable life, etc., for miles around. Even today, the "coffin basin" is a desolate waste of eroded hills with a scant covering of grass.

Specimens obtained from the dumps were pyrite, chalcopyrite, garnet, epidote, tremolite, bornite, staurolite ,and calcite.

Geo. C. Olmsted
Pub. Com.

World's Deepest Borehole Abandoned

The world's deepest man-made hole, the Weller oilwell located 5 miles north of Fort Cobb, in Caddo County, of western Oklahoma, has been abandoned. Its depth, 17,823 feet (nearly 3½ miles) probably will stand as a record for some time to come. This depth was reached on Saturday, June 21, 1947, when the hole was stopped, never to be deepened again. This deep hole, drilled by the Superior Oil Company of California, was started in May, 1946.

The following information is taken from the Sunday, August 17, 1947, issue of *The Daily Oklahoman*:

Cost is High

"It is estimated the Weller project cost as much as $1,500,000. The well was drilled with company tools and four crews of seven men each were used. Company also spent a small fortune in assembling leases and curing titles. Geological and geophysical costs have been high, for constant correlation between well samples and the seismograph interpretation has been maintained.

"The well developed only one serious fishing job; at 17,236 feet, the drill pipe stuck. After cutting off the pipe and washing over, the "fish" was recovered in what field man have called "a miraculous job." "

Rocks and Minerals is deeply grateful to Mr. Jay E. Gilkey, of Oklahoma City, Okla., for notes, news items and clippings on this world-famous borehole. It was he who first called our attention to it and who later kept us faithfully informed on its progress.

For further information on the borehole see *Rocks and Minerals* for March (p. 206), April (p. 306), June (p. 537), and August (p. 702) of this year.